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PHOTOGRAPHIC INTELLIGENCE REPORT

KRYLOV CENTRAL SCIENTIFIC RESEARCH INSTITUTE

LENINGRAD, USSR

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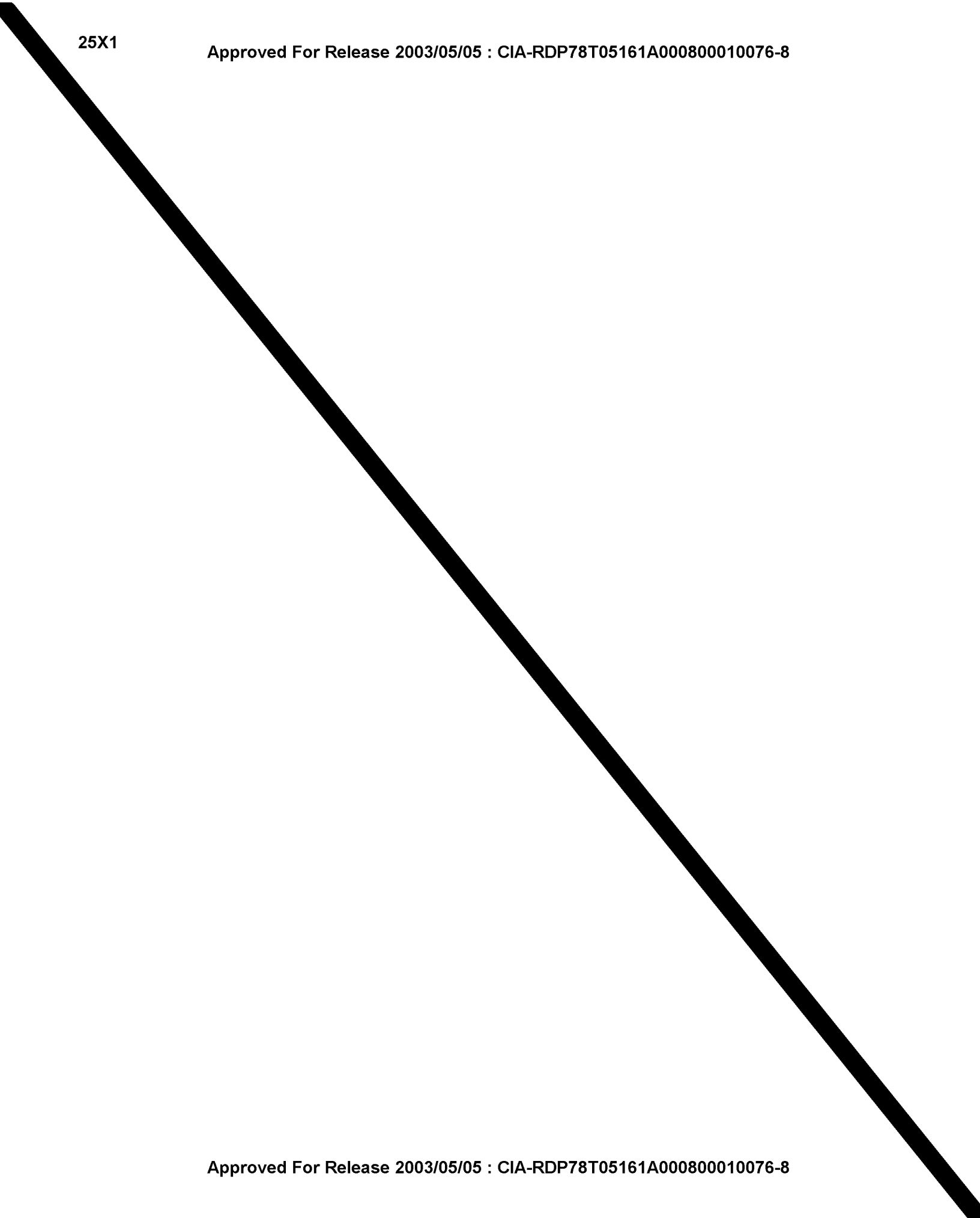

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CIA IMAGERY ANALYSIS DIVISION

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CIA IMAGERY ANALYSIS DIVISION

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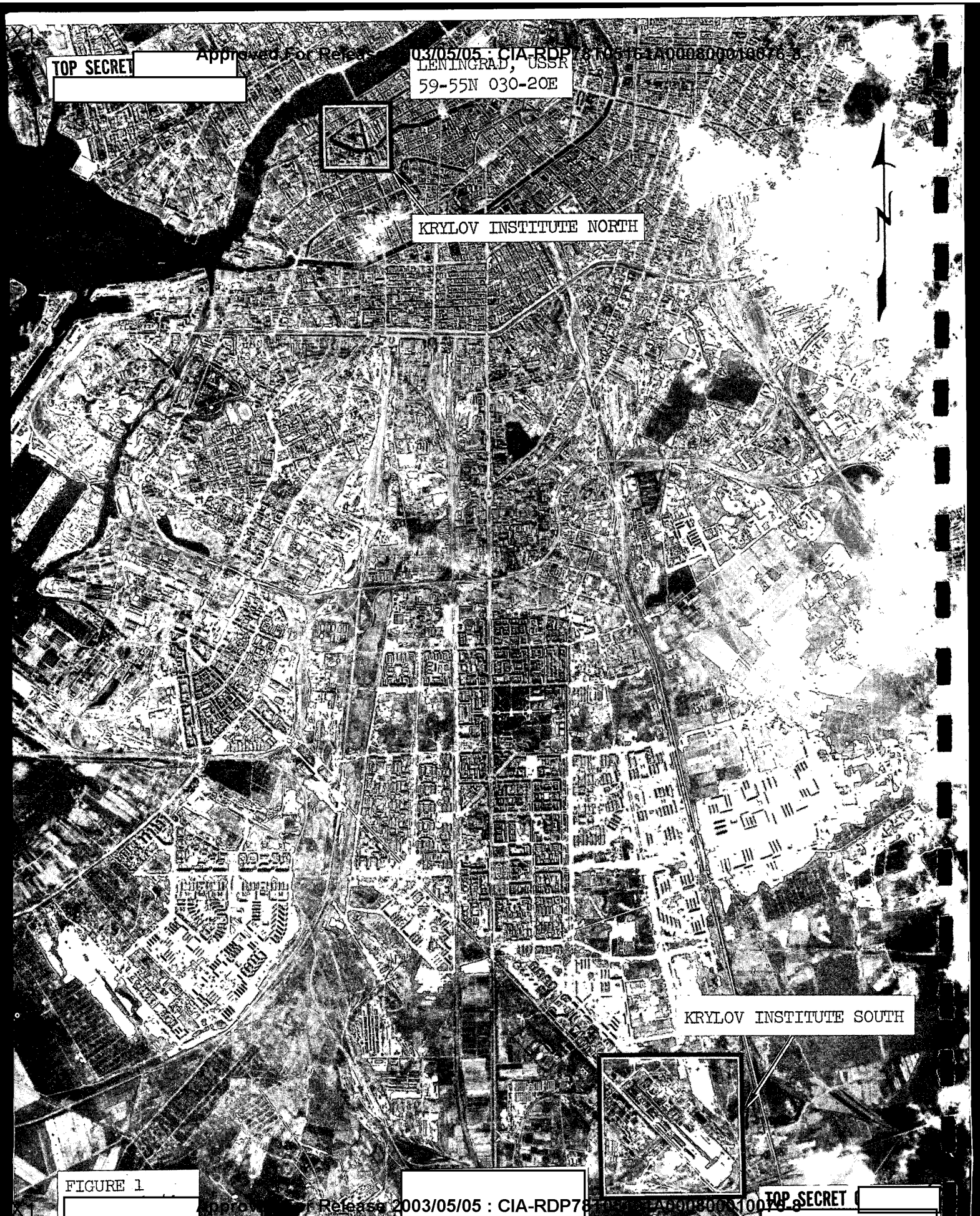

FIGURE 1

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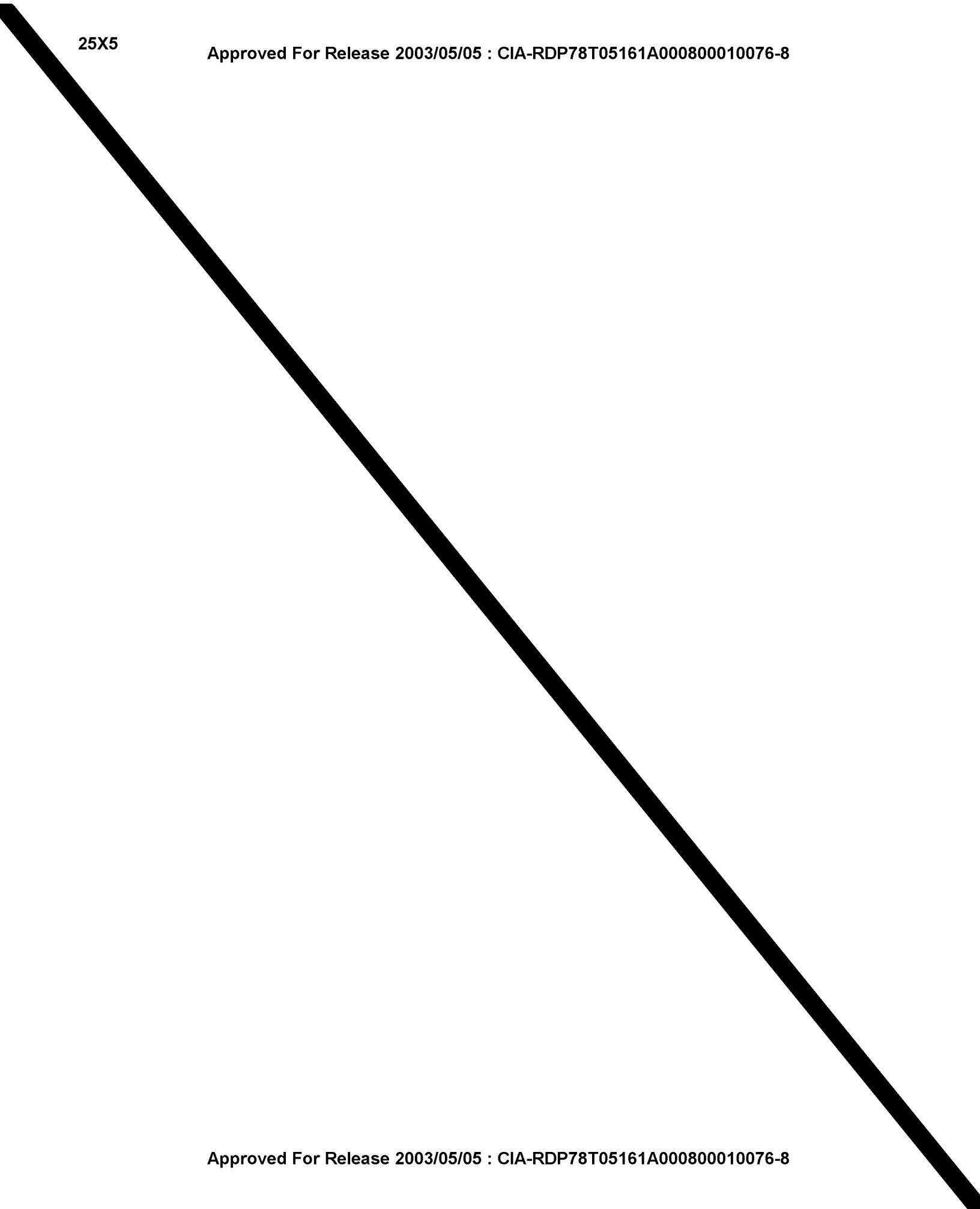

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I. INTRODUCTION

A. Background

The Krylov Central Scientific Research Institute (TSENTRAL'NYY ORDENA TRUDOVOGO KRASNOGO ZNAMENI NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT 45 imeni AKADEMIKA A.N. KRYLOVA) is situtated on two sites in Leningrad hereinafter called the Krylov Institute North and the Krylov Insititute South. The first of these two sites (Krylov Institute North) was located on NOVYA GOLLANDIA Island (59-55-45N, 030-17-25E) in the Moika Canal in central Leningrad. Prior to World War II the Institute expanded to a site (Krylov Institute South) approximately 12 kilometers south of the center of the city. Considerable expansion occurred at Krylov Institute South after World War II; as of the summer of 1965 this facility contained more than 70 buildings on approximately 180 acres of land. During the same time span Krylov Institute North does not appear to have changed.

In the USSR the study of the seagoing qualities of ships is concentrated at the Krylov Institute. Since it is here that the research and testing of naval and non-naval design is implemented, it is important that a detailed investigation of its facilities be carried out. Knowledge of the nature and capability of these facilities is advantageous in determining the level of effort being put forth in Soviet naval and merchant ship research.

[redacted] 25X

(1) Hydromechanics - the interaction of ships with the sea;

(2) Aerodynamics - the interaction of flight vehicles with the air;

(3) Structural Mechanics - the strength of submarines and surface ships;

(4) Applied Mathematics - theory and computers applied to naval design;

(5) Various support activities.

How many of the above functions and to what extent they are developed in the USSR is a primary consideration in determining Soviet naval research and testing capabilities.

B. Scope of the Report

The purpose of this report is to illustrate through the use of all available overhead and ground photography the changes that have occurred at the Krylov Institute in Leningrad, [redacted] and to identify the function of selected facilities at the Institute.

For this report the two locations of the Krylov Institute will be referred to as the Krylov Institute North and the Krylov Institute South, and will be analyzed separately. Thus, the three main sections of the report are: (1) Analysis of Krylov Institute South; (2) Analysis of Krylov Institute North; and (3) [redacted]

So that the development of the Institute may be put into a perspective that reflects its growth; the photography available, both overhead and ground, is presented in chronological order to illustrate the sequence of events as they occurred.

C. Graphic and Mensuration Data

All measurements unless otherwise indicated were derived by the Technical Intelligence Division, NPIC; they are considered accurate within ten feet or ten percent, whichever is greater. Measurements made by the CIA/IAD project analyst are indicated by an asterisk (*). The drawings of the Krylov Institute South (Figures 5 and 40) were prepared from measurements provided by the Technical Intelligence Division, NPIC. These illustrations are drawn to an approximate scale and may not exactly reflect the dimensions given in the accompanying keys.

The great variety of building heights, shapes and angles, and the shadows cast by them; as observed on the site of the Krylov Institute North, precluded detailed mensuration of [redacted] photography. Since the facility does not appear to have changed from the time of World War II

the photography of [redacted] providing the best stereo imagery of the area, was used in preparing the illustration in Figure 44. Due to the lack of camera data and the instability of the [redacted] print materials used, dimensions derived from this photography can only be evaluated as approximate.

Although the CIA photography 314319 - 314334 is dated [redacted] it is believed that this collection was, in fact, photographed during the [redacted]

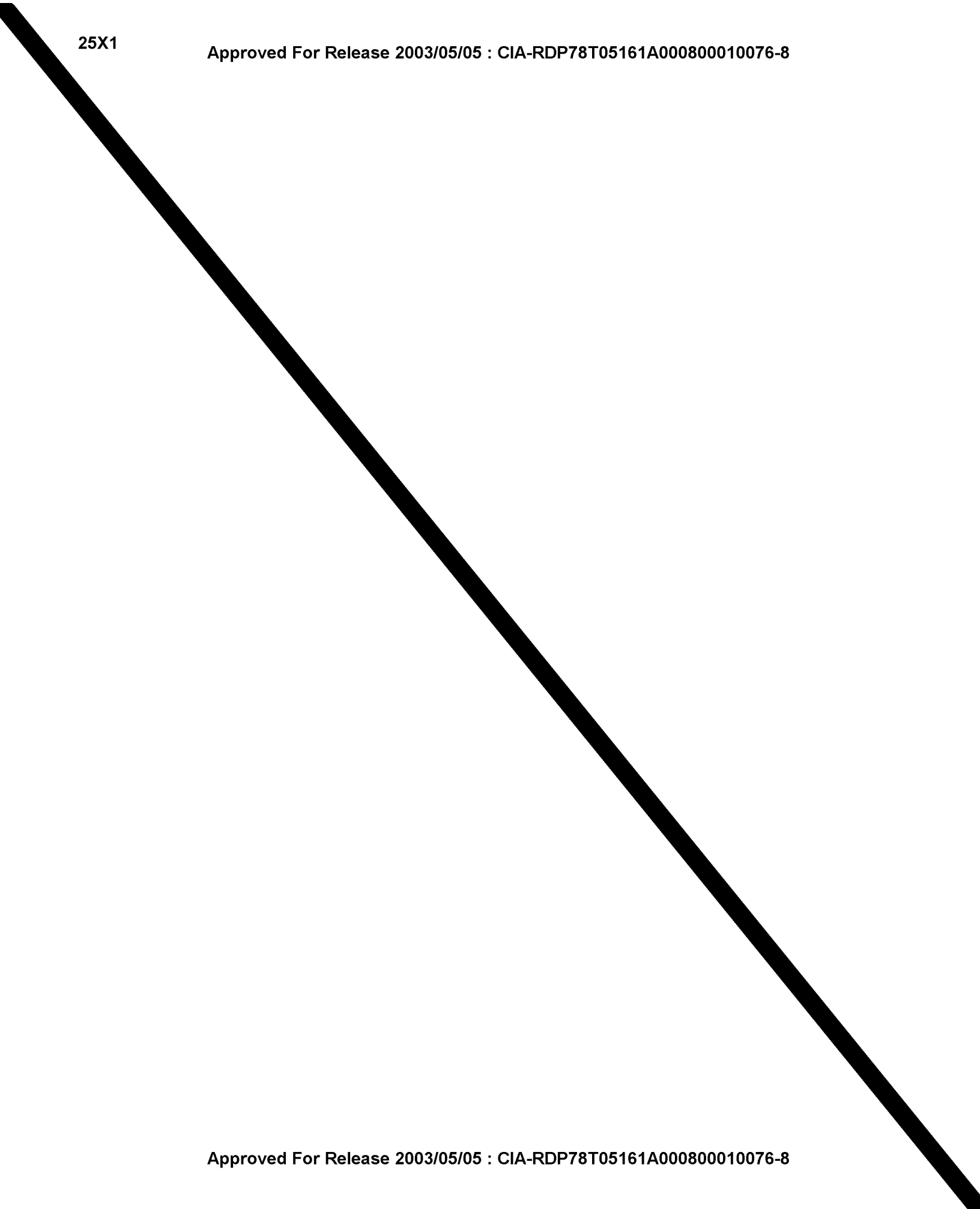
The drawing in Figure 47 of the David Taylor Model Basin was prepared from information in the "LONG RANGE DEVELOPMENT PROGRAM MASTER PLAN" for which no accuracy statement is available.

The drawing in Figure 30 was prepared by the CIA/IAD project analyst from information derived from CIA/SID 65-2 (51056) and all overhead and ground photography available. All annotated measurements on Figure 30 were done by the CIA/IAD project analyst.

The number annotations on Figures 15, 16, 17, 18, 31 and 32 refer to the facility key numbers used in Figures 5 and 40. Their use in each of these six graphics is to indicate when a specific facility was first observed on [redacted] photography.

DURING WORLD WAR II

FIGURE 3



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II. SUMMARY

A. Status of the Krylov Institute During World War II

The notable facility expansion of the Krylov Institute since World War II has been observed only at the South site; Krylov Institute North appears to have remained unchanged since World War II.

The Krylov Institute apparently outgrew its original site on the triangularly-shaped Novaya Gollandia Island (Figure 43) sometime prior to the Second World War. Overhead photography taken in [ ] revealed that a complex of buildings located approximately 12 kilometers southeast of the original site, and later identified as being associated with the Krylov Institute, had been under construction at that time (Figure 3). This complex, containing a 1665 ft. long structure identified as a basin for towing scaled models of ships' hulls, was an addition to the Krylov Institute that could not be housed at the original site due to the lack of space. Later wartime photography taken in [ ] showed no additional construction at Krylov Institute South and that the northeast building (#1A on Figures 5 and 40) remained incomplete. In addition to the long deep-water towing basin, this new complex also contained a shallow-water towing basin, a probable model shop, and possibly other related support facilities. It could not be ascertained whether or not these facilities were operational at that time.

B. Status of Krylov Institute South Since World War II

Analysis of [ ] (Figure 5), the first overhead photography of the Leningrad area since World War II, disclosed that the facilities at Krylov Institute South had been greatly enlarged from the four-building complex first seen in [ ] Approximately 24 new buildings had been constructed on that site since the war. In addition to the two towing basins and probable model shop that were identified as being present in [ ] analysis of [ ] also revealed a housing area, heating/power plant, open maneuvering basin, support facilities, and many unidentified buildings. At the time of this photography it can be seen that about six separate buildings were under construction, indicating considerable activity. Good imagery was also available over Krylov Institute North on [ ] (Figure 43); however, no changes at this site could be seen.

There was again a long lapse in overhead photography; however, approximately a year later [ ] a series of excellent ground photos provided extremely valuable information regarding the interiors

of selected facilities of Krylov Institute South. This series also included a low oblique panorama of the site, although poor in quality, that provided knowledge of relative building heights. From this imagery it could be seen that some buildings were still under construction that had been seen a year earlier; however, the bunker surrounding the open manuevering basin had been completed (Figure 14).

The first photography ended a long absence of overhead imagery that had existed since (Figure 15), although poor in resolution, disclosed that Krylov Institute South had again expanded considerably. Although the presence of approximately 20 new facilities was detected on this mission, identification of selected facilities could not be made until subsequent missions. Facilities, later identified, that were completed or under construction included an extended towing basin and probable rotating arm facility (for towing models in a circular path). Approximately 18 other unidentified buildings were first observed on this coverage.

Not until over a year later was there a mission that provided imagery of such quality that the existence of all the new buildings could be verified. (Figure 17) was the first stereo imagery of Krylov Institute South, and provided the identification of buildings whose existence was theretofore uncertain. The probable circulating water channel was seen for the first time on this mission. The building housing the towing basin extension appeared to be complete, except for that section connecting to the older basin. Also, it appears that the southeast end of the original basin housing has been dismantled for a distance of about 75 feet (*). This would seem to indicate that the end of the old basin was being revamped in order to be connected to the new addition. later, on it can be seen that the structure containing the old basin and the extension were then connected by a new roof.

Ground photography in February 1964 (Figures 19 through 29) provided additional evidence regarding the nature of the facilities previously seen only from overhead. Analysis of Figures 22 through 28 has resulted in the identification of the probable function of a large new building under construction. This unusually configured building is identified as a probable circulating water channel for conducting hydrodynamic research and testing. This facility (building #30 on Figures 5 and 40) is discussed in detail in the analysis of Krylov Institute South.

(Figure 32) provided evidence of new construction adjacent to the southeast end of the new towing basin extension. The foundations of a very large building could possibly be seen under construction on the previous mission, (Figure 31). Progress of the construction of this building is visible in each of the succeeding missions. Analysis of (Figure 39) reveals that the exterior of this building is nearly complete.

The facilities at Krylov Institute South are secured by a wall approximately feet high (Figures 34, 35, and 36) enclosing the site on at least three sides. Although there are no ground photos showing the northeast side of the site, it appears on overhead photography (Figure 33) that the wall extends along most of this side. However, the housing area in the northwest corner of the site is excluded from the inner perimeter of the wall. Certain areas and groups of buildings within the outer wall appear to be separately secured. A group of relatively small buildings in the northeast corner of the site are located within an additional wall or fence. The probable circulating water channel and the "T-shaped" southeast end of the long towing basin appear to be separately secured.

Krylov Institute South is served by a rail spur that enters the site through the southeast wall. This spur does not appear to extend beyond the heating/power plant to which it supplies coal. This site is also served by several roads including the main Moscow-Leningrad highway which runs adjacent to the facility. A streetcar line has its terminus in front of the northeast end of the facility.

Figure 4 provides, in graphic form, a tabular summary of the facility expansion observed at the Krylov Institute South. The status of each facility/area (keyed by annotation number to Figures 5 and 40) is reflected at various intervals during the time period These specific intervals were, in each instance, dictated by the very limited photographic coverage of the Krylov Institute South during this time. The apparent marked facility expansion noted on is primarily indicative of a lack of any photographic coverage of this site during the five years preceeding this mission.

The period of greatest construction activity associated with the Krylov Institute occurred at the South site during the time just prior to Construction appears to have continued up through but at a slower rate. Unfortunately, peak construction activity occurred during a period largely devoid of photography.

C. Status of Krylov Institute North Since World War II

From the time that Krylov Institute North was first observed on overhead photography in [redacted] (Figure 44) until the present, no changes to the facilities at this site have been detected. It is impossible to tell from the existing photography to what degree, if any, the Krylov Institute continues to utilize the facilities at this site.

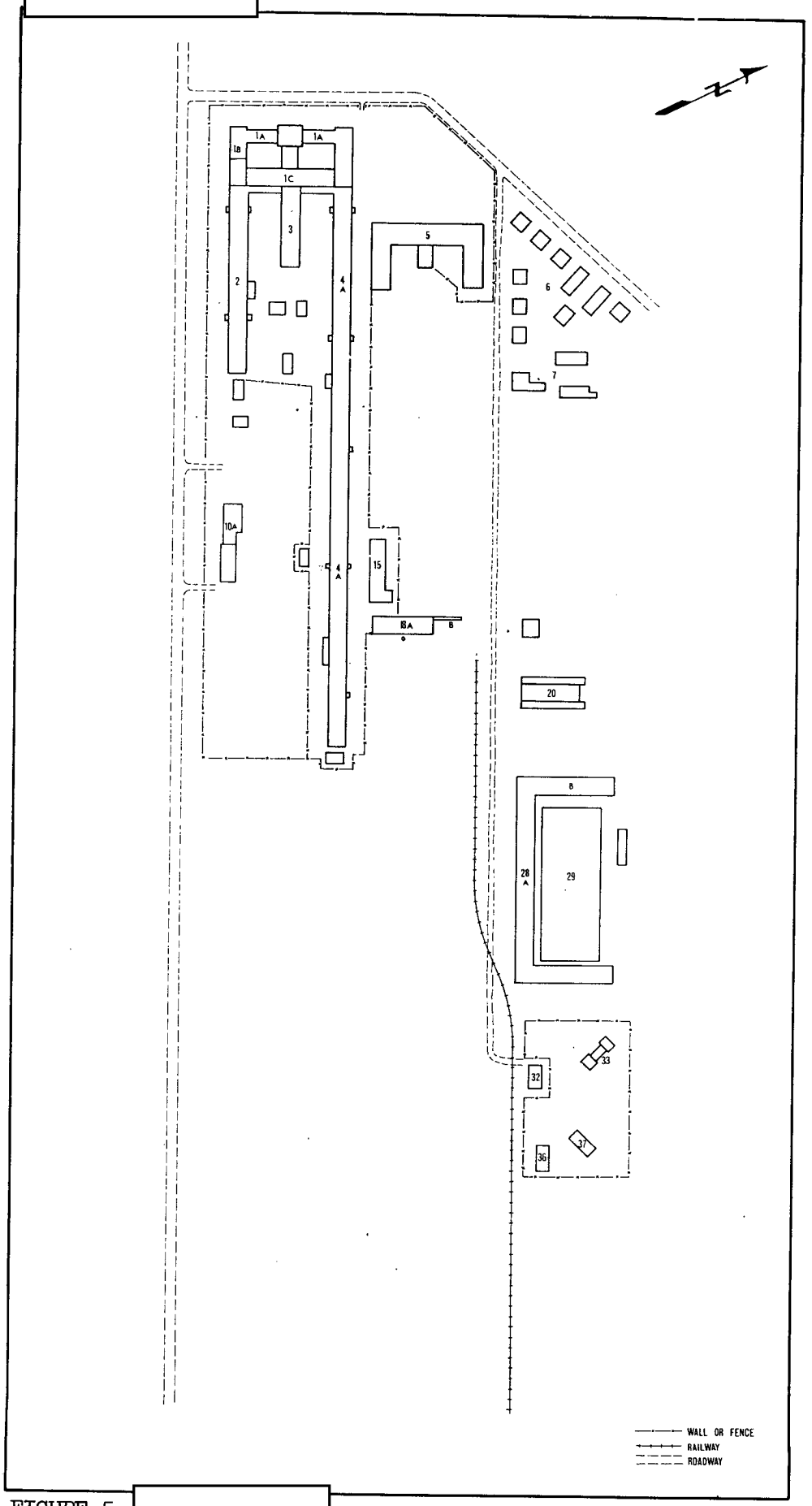


FIGURE 5

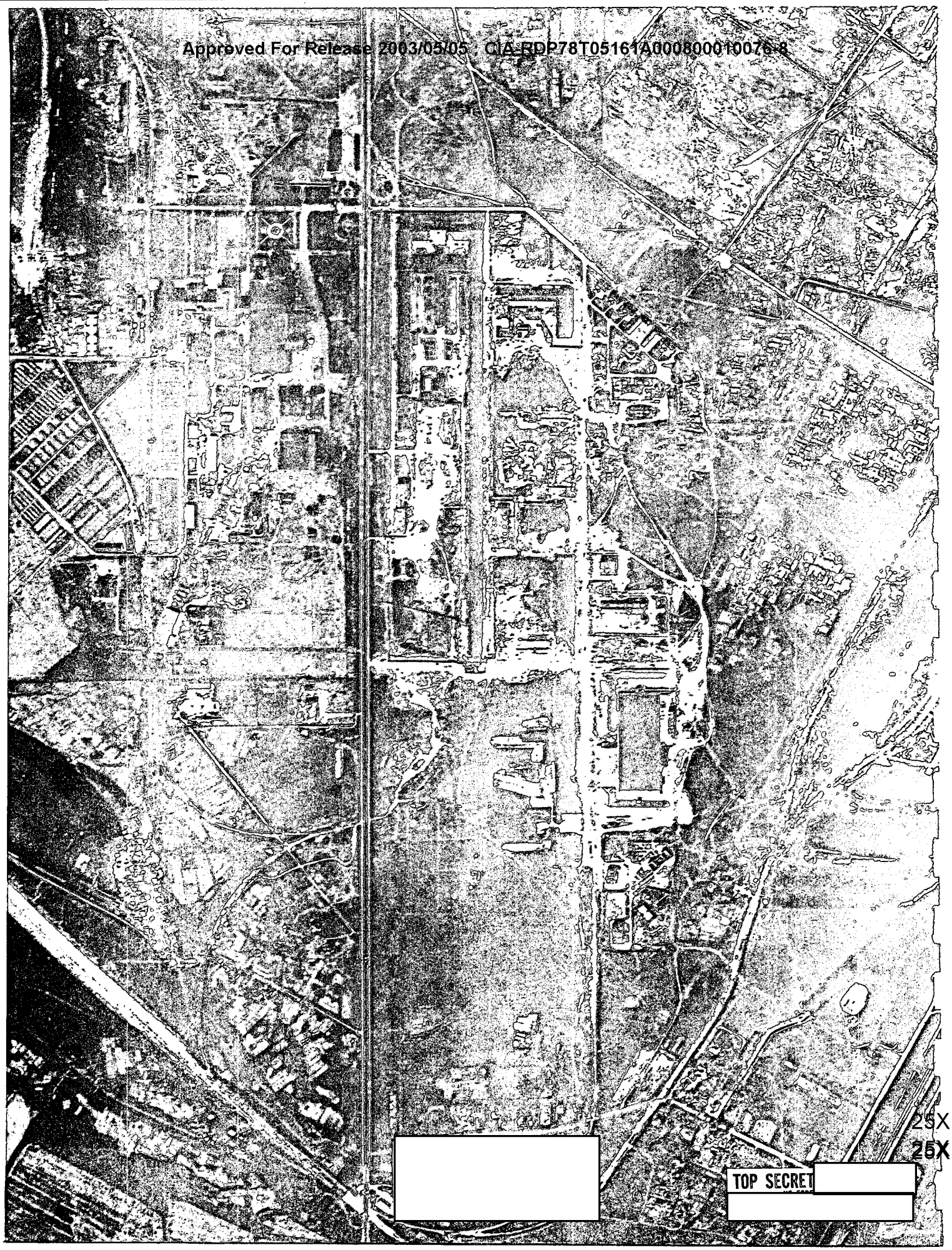
KRYLOV INSTITUTE SOUTH (1956)

Leningrad, USSR

KEY TO ANNOTATIONS

ITEM	DIMENSION	HEIGHT (stories)	FUNCTION
1A	335' x 50'	2	Probable administration
B	225' x 65'	2	End of towing basin, possible machine room for towing equipment.
C	335' x 65'	1 1/2	Probable model shop.
2	700' x 70'	1	Shallow - water towing basin.
3	290' x 70'	1	Unidentified building.
4A	1665' x 70' (minimum)	1	Deep - water towing basin.
5	430' x 245' (overall)	2 1/2	Unidentified building.
6	various	2	10 buildings - probable housing.
7	various	1	3 buildings - probable vehicle/equipment storage.
10	485' x 85' (overall)	2 & 3	Unidentified "office" type building.
15	230' x 90' (overall)	1 1/2 - 2	Unidentified building.
18A	180' x 60'	3 - 4	Heating/power plant.
B	200' x 20'	1 - 4	Coal conveyor to heating/power plant.
20A	230' x 60'	2 1/2	Unidentified building.
B	250' x 30'	1	(Part of building 20A)
28A*	800' x 75'	1 1/2	Wind barrier for open manuevering basin.
B*	375' x 75'	1 1/2	Wind barrier for open manuevering basin.
29	570' x 220'		Open manuevering basin.
32	70' x 60'	1 1/2	Unidentified building.
33	135' x 55'	1 1/2	Unidentified building.
36	100' x 50'	2	Unidentified building.
37	115' x 85' (overall)	1 1/2	Unidentified building.

Asterisk (*) indicates measurements by CIA/IAD project analyst.



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III. PHOTO ANALYSIS OF FACILITIES

A. Krylov Institute South

The following items are described in numerical order. The numbers refer to facilities keyed to the approximate scale drawings on Figures 5 and 40. Several buildings annotated on Figures 5 and 40 are not discussed below due to insufficient information.

1. Building #1 was first observed in [redacted] (Figure 3). It was one of the original facilities erected at the Krylov Institute South site. At that time a portion of this building was either incomplete or had received damage in the war. The wing that faced to the northwest (#1A on Figures 5 and 40) did not have a roof above the second floor at that time. With the exception of having had the roof completed, the subsequent coverage of this area reveals that no changes have occurred to the present day. Ground photography of this building (Figure 19) shows that it is two stories high and of masonry construction. The general appearance of this building suggests that it has an administrative function.

The southwest wing of building #1 (annotation #1B on Figures 5 and 40) has also remained basically unchanged since it was first seen in [redacted] Figure 6 reveals that this portion of the building is also two stories high. The function of wing #1B is believed to be directly related to the adjacent facilities - the shallow-water towing basin (building #2) and the probable model shop (wing #1C). The one-third of wing #1B nearest building #2 equates to the docking area seen in the foreground of Figures 11 and 12. This evaluation is based in part upon the window placement, sidewall configuration, overhead hoist tracks, and indication of a second story interior partition visible in the background of Figure 12. The wall partition seen in the background of Figure 12 appears to coincide with the break in the roof of wing #1B visible in Figure 5. This area is served by a small overhead travelling hoist that runs through the model shop (probably located in wing #1C) and is connected to the ends of each of the towing basins. Analysis of [redacted] (Figure 5) revealed a one story addition to wing #1B within the southwest corner of the courtyard within building #1.

Wing #1C extends perpendicularly from wing #1B of this building. It is in this structure (wing #1C) that the model shop seen in Figure 13 is believed to be located. Adjacent to wing #1C, within the courtyard of building #1, is a one story corridor that connects wing #1A with #1C.

2. Building #2 was also one of the first buildings at Krylov Institute South seen in (Figure 3). This building houses the shallow-water towing basin seen in Figure 11. The docking area in the foreground of Figure 11 is the same docking area viewed from 180 degrees on Figure 12. Note that the forward half of the model visible at the extreme left in Figure 11 is identical to the model visible in the foreground of Figure 12. Building #2 is a one story structure with an arched roof approximately 700 feet long and 70 feet wide which connects directly with wing #1B. Figure 6 provides an excellent oblique view of this structure. This facility does not appear to have changed in the subsequent coverage.

3. This building has the same outward appearance as the adjacent parallel towing basins but is much shorter, having a length of only 290 feet. The function of this building is unknown, but it would seem likely that it is associated with model testing. This building has not changed in outward appearance since it was first seen on (Figure 3).

4. The building indicated by #4A on Figures 5 and 40 houses the deep-water towing basin seen on Figures 7, 8, 9, and 10. It was one of the original structures seen at this site in 1942 (Figure 3). This building is single storied, has an arched roof and in measured 70 feet wide (minimum) by 1665 feet in length (Figure 5). At that time, although there had been considerable construction of other facilities around building #4A, this building remained unchanged. However, the next photo coverage over Krylov Institute South, (Figure 15), revealed new construction (indicated by #4B on Figure 40) at the southeast end of building #4A and directly in line with it. Although the poor imagery of this mission precludes positive identification, the white line extending to the southwest from #4A appears to equate to the construction of the actual towing basin within #4B before the roof structure covered it. A year later on (Figure 17) provided the first stereo coverage of the area At that time the structure (#4B) housing the new basin appeared to be complete, but not connected to the old basin (#4A). However, the last 75 feet (*) at the southeast end of structure #4A appears to have been removed. The end of the towing basin of #4A was probably being altered so that it could be connected to the new facility in #4B. The next coverage, (Figure 18), does in fact, show that a roof structure connects #4A with #4B. It cannot be determined from the limited photography of this time period) whether structure #4B does actually contain a towing basin. However, the alignment and connection

of this structure with the original deep-water towing basin (structure #4A), as well as the exterior similarity of both of these structures, strongly indicate that structure #4B does house a towing basin and that it is more likely an extension of the original basin. The combined length of structure #4A and #4B is approximately 4230 feet.

5. Building #5 appears for the first time on [redacted] (Figure 5). At this time it was still under construction with two-thirds of the structure complete. Approximately a year later, as seen in Figure 6, this building is still under construction. It is first seen complete in [redacted] (Figure 15). This build- does not appear to have changed since that time. The function of this building is unknown; the long windows seen in Figure 34 would suggest that it has very high ceilings and thus might not be associated with offices. This building is within the security wall/fencing which nearly surrounds the large towing basin complex.

6. Annotation #6 represents an area consisting of ten buildings located outside of the secured area containing the main towing basin complex. This group of buildings was first observed on [redacted] (Figure 5). All later missions revealed that no changes have taken place since it was first seen. Figure 34 shows a portion of one of these buildings next to which children can be seen playing. This information supports the conclusion that these buildings comprise a housing area.

7. Annotation #7 represents an area consisting of 17 structures located outside the main secured area. Only three buildings were on this site at the time of [redacted] Figure 5). The next coverage, [redacted] (Figure 15), revealed that considerable expansion had taken place within this area. Approximately 14 new buildings were seen in the subsequent coverages. The general shape and grouping of these buildings, in addition to evidence of extensive vehicle activity in this complex, indicates that this area supports construction and maintenance activities. Many of the low buildings appear to be vehicle/equipment storage sheds, about which can be seen (in Figure 33) vehicle tracks in the snow. This area does not seem to have changed in appearance since [redacted]

10. On [redacted] (Figure 5) the building located on this site is indicated by #10A. An addition was built between [redacted] which is indicated by #10B on Figure 40. No further

changes have been noted in this building since (Figure 15). The portion of this building indicated by #10A can be seen in the extreme right-hand side of Figure 6. This imagery reveals that the building has both a two and a three story level. The general appearance of this building indicates that it is of the "office type"; however, the exact function of this building is unknown.

11. Building #11 appeared first on (Figure 15). It is actually a wing of building #12, the probable rotating-arm facility. Building #11 extends approximately 360 feet out from the circular building #12, has a maximum width of 100 feet, and is three or four stories high. Although the exact function of this building is not known, it is believed to be directly associated with model testing in the probable rotating-arm facility. No changes have been noted to this building in subsequent missions.

12. This facility was first noted on (Figure 15). It is a round building about 240 feet in diameter with a domed roof approximately two or three stories in height. It is probably a rotating-arm facility for towing models in a circular path. The outer appearance of this building had not changed since it was first noted Figure 15). At the south end of this building there is a short wing about 75 feet square possibly used to facilitate the handling of models and equipment. Figure 20 provides an excellent side view of this facility.

13. This unidentified building, first seen on (Figure 15), is located just southeast of the probable rotating-arm facility (building #12). The function of this building is unknown, however it has a general "office" appearance.

14. Building #14 was first seen on (Figure 15). It measures 375 feet in length by 75 feet in width and is approximately $2\frac{1}{2}$ stories in height. Ground photography revealed that this building had large "industrial type" windows in constrast to the surrounding buildings which have small "office type" windows.

17. Number 17 identifies an area that consists of 8 buildings and 11 small structures within a separately secured compound. (Figure 5) revealed only one building was located within this area. On (Figure 15), it was noted that the number of buildings within this area had been substantially increased. Analysis of (Figure 17) revealed a

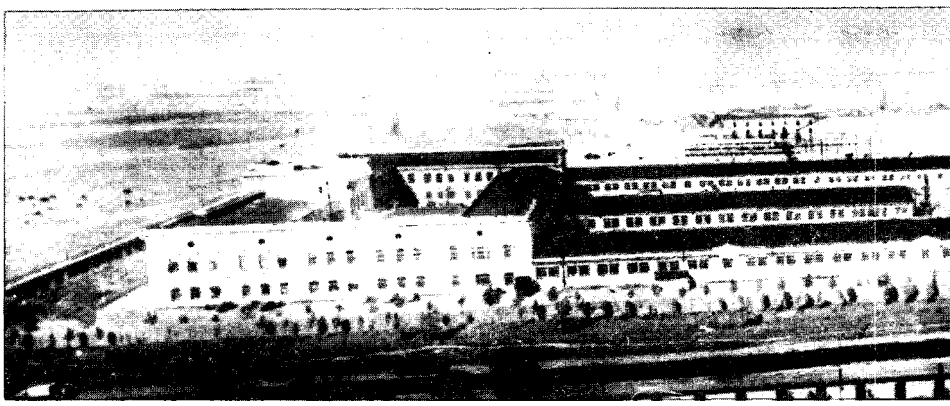


FIGURE 6. Panorama view of Krylov Institute South facility.

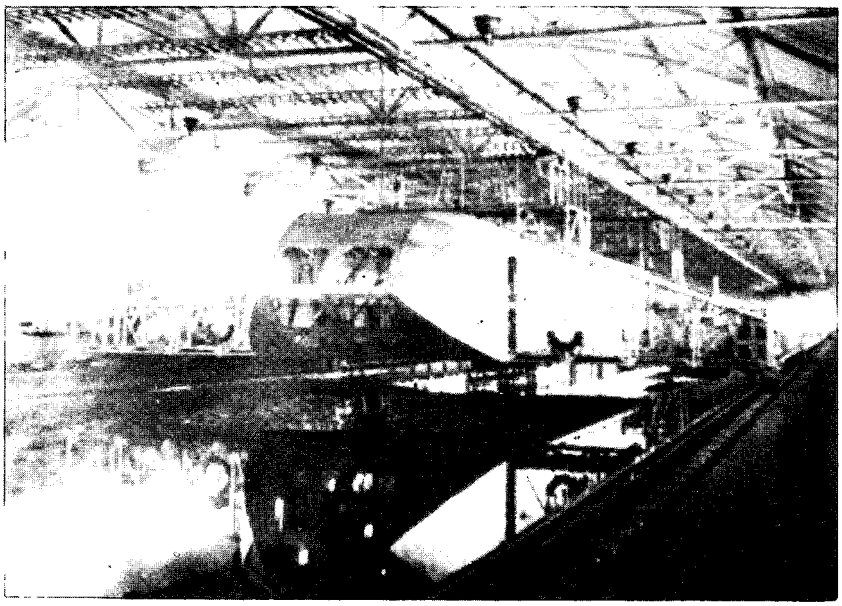
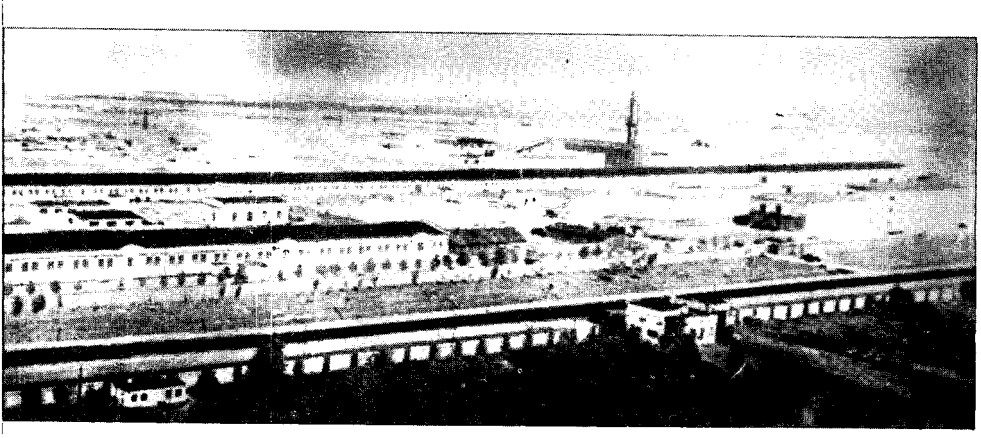


FIGURE 7.

Rear of carriage #1 of deep water basin. 1957 (CIA 314321)

FIGURE 9.

Deep water basin. 1957 (CIA 314319)



1957 (CIA 314333 - 314334)

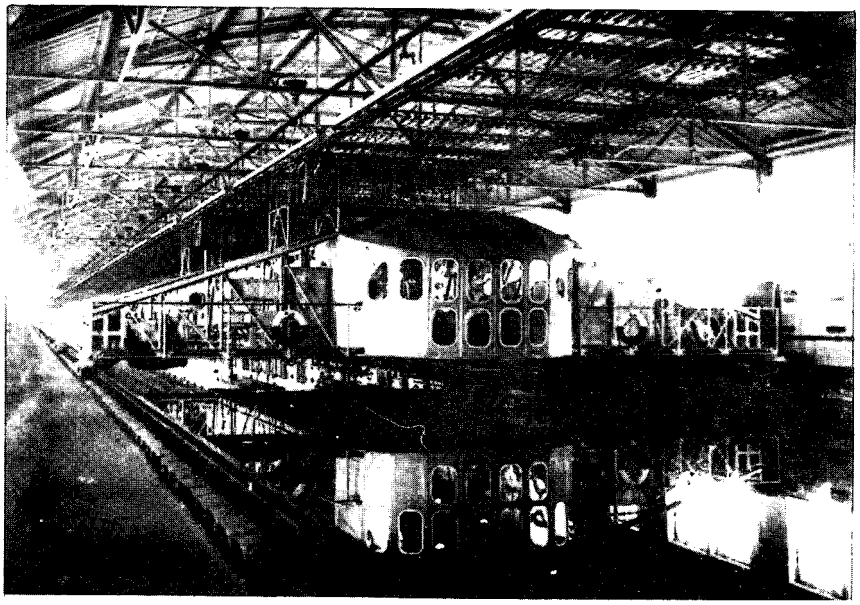


FIGURE 8.

Front of carriage #1 for deep water basin. 1957 (CIA 314320)

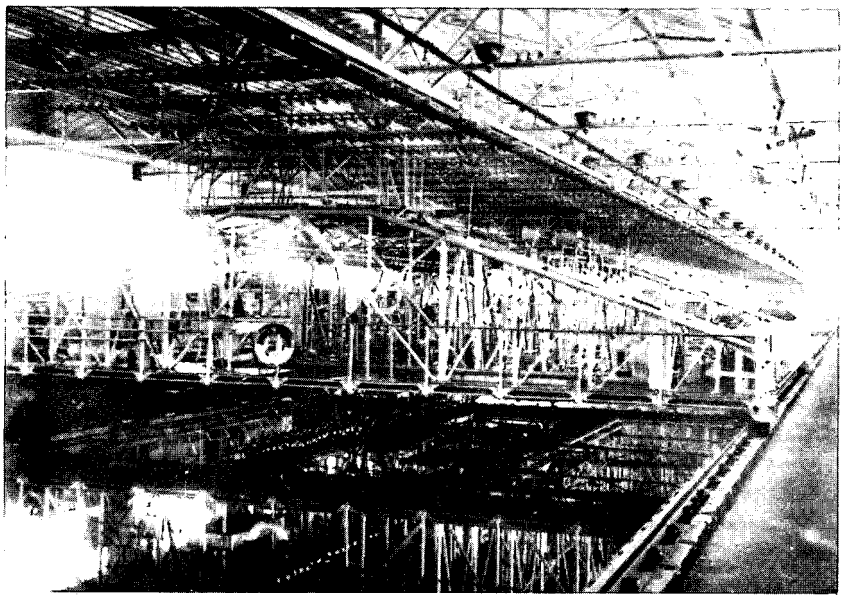


FIGURE 10.

Carriage #2 for deep water basin. 1957 (CIA 314324)

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FIGURE 11. Shallow water basin. 1957 (CIA 314327)

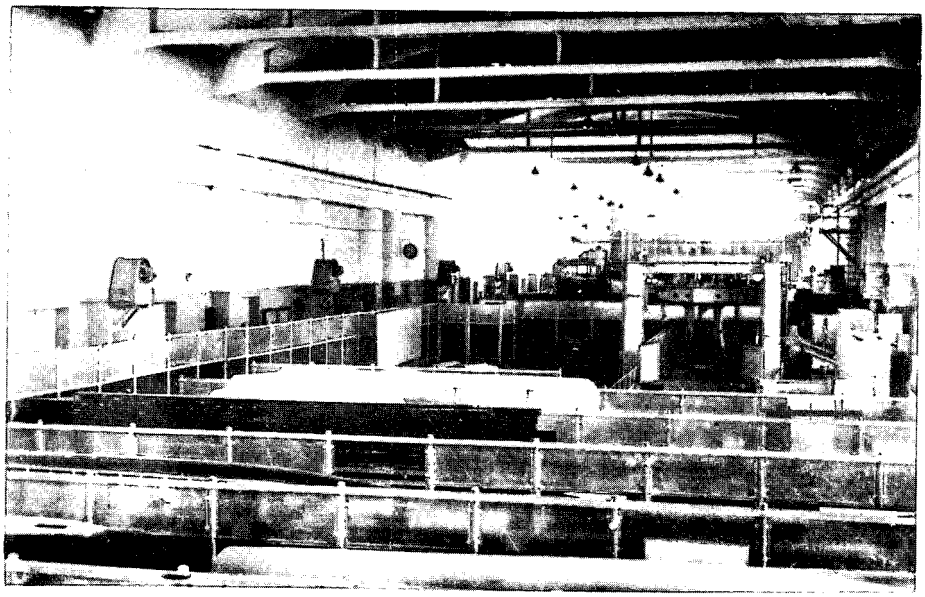

FIGURE 13. Model shop. 1957 (CIA 314329)

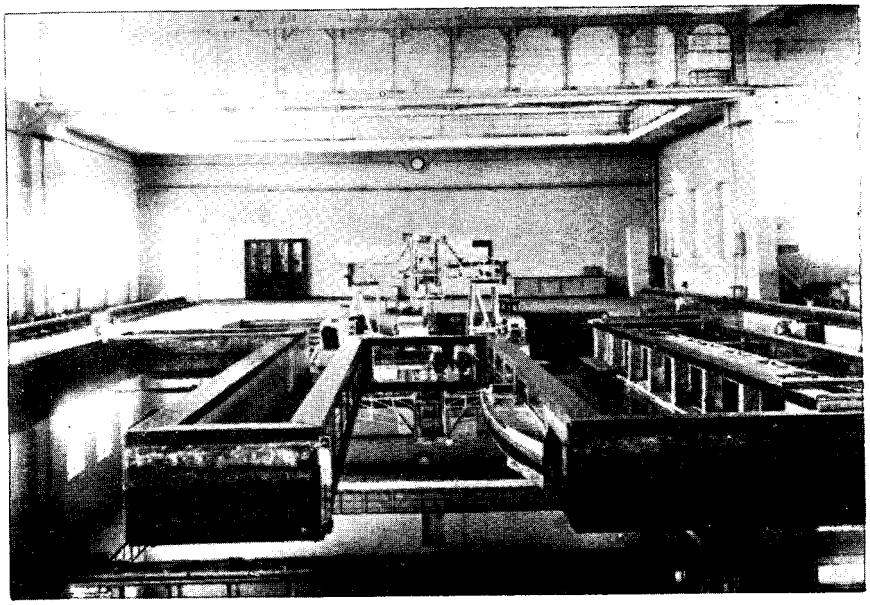

FIGURE 12. Northwest end of shallow water basin. 1957 (CIA 314328)

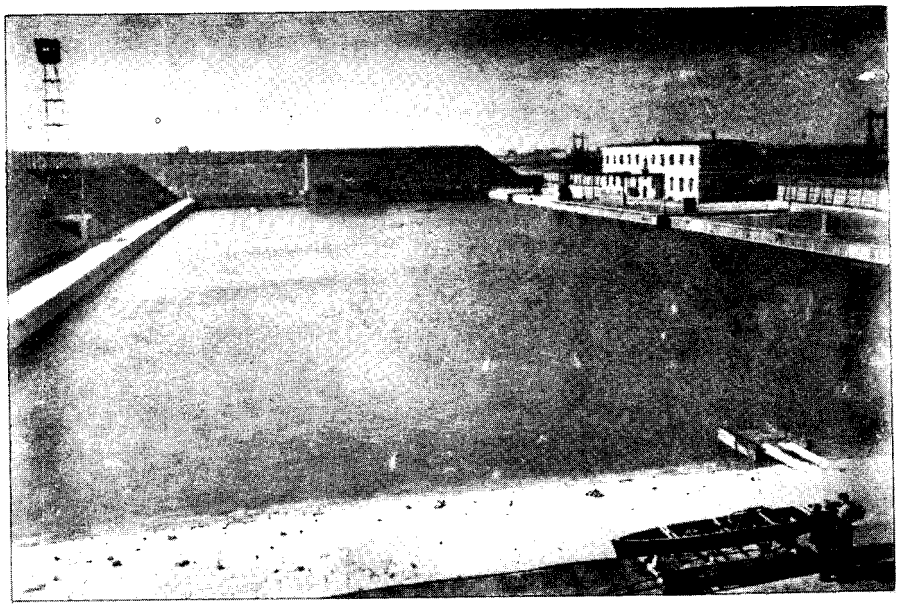

FIGURE 14. Maneuvering basin. 1957 (CIA 314332)

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FIGURE 15

FIGURE 16

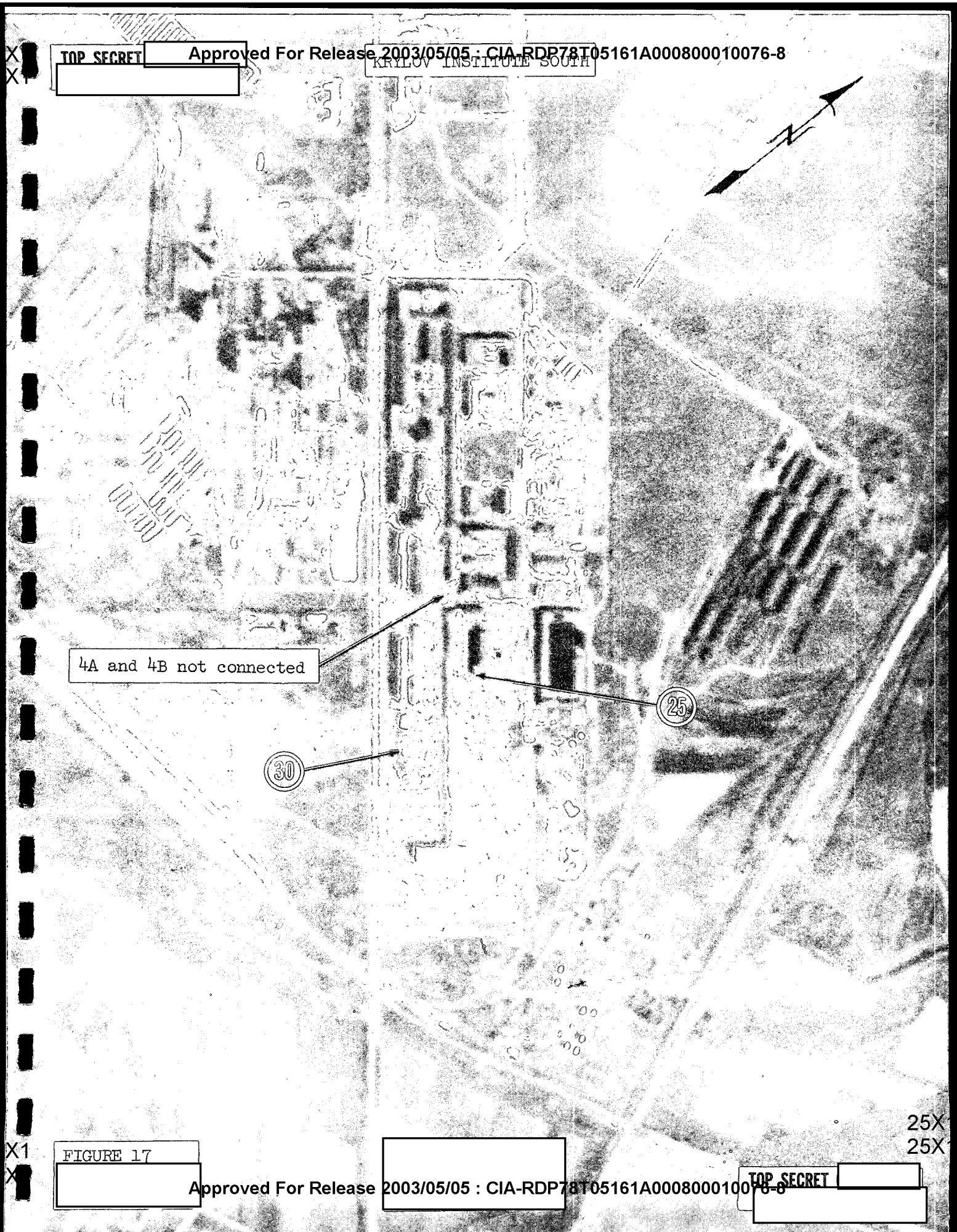


FIGURE 17

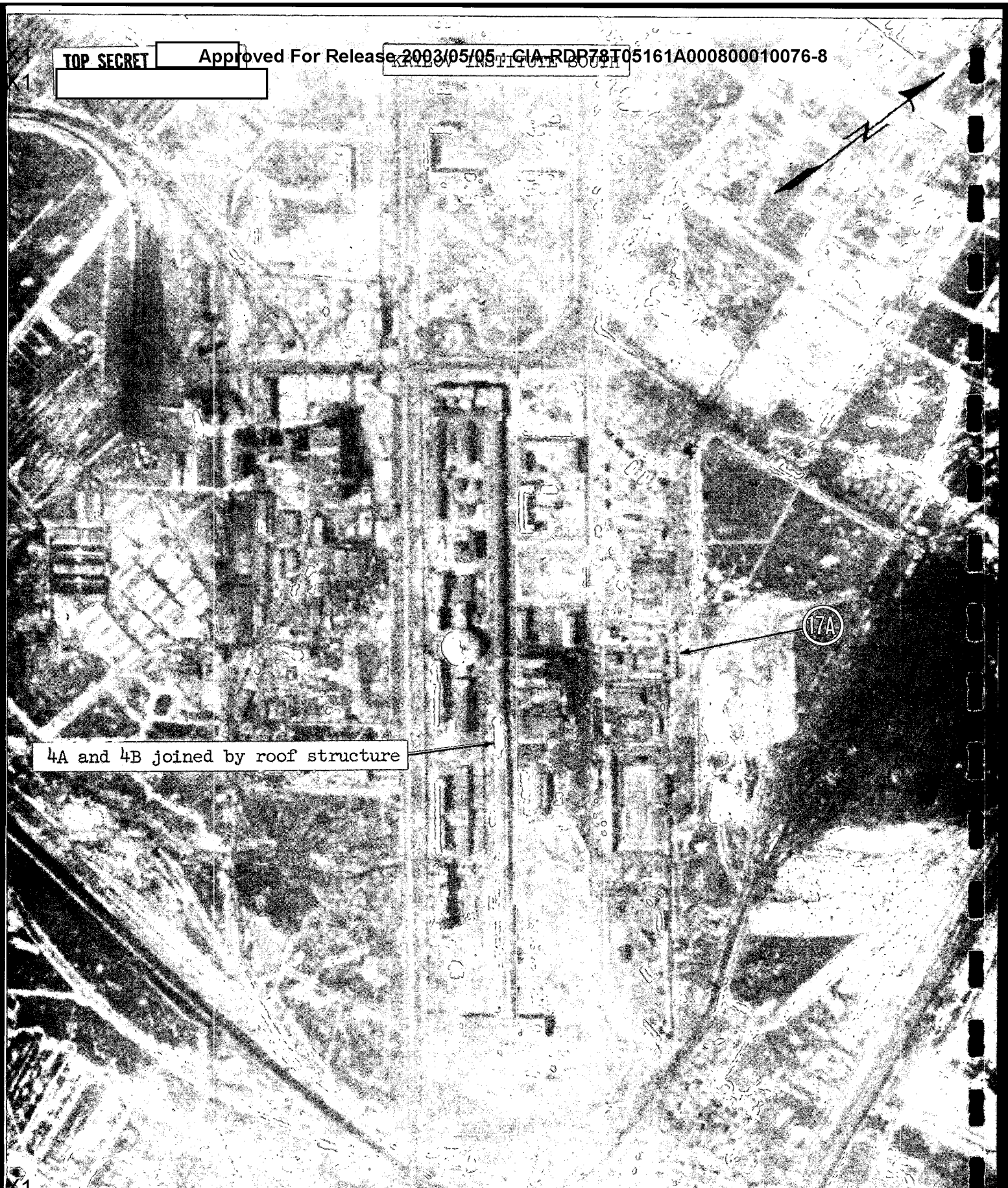


FIGURE 18

total of eleven structures of various shapes and sizes. On the next Mission, [redacted] (Figure 18), an additional eight unidentified objects were present. These objects measure approximately 35 feet (*) by 30 feet (*) and may be cylindrically-shaped. The function of these objects is unknown.

18. This facility was first seen on [redacted] (Figure 5) at which time it could be identified as a heating/power plant. Figure 6 shows a profile view of this building in the upper right background of the photo. It can be seen in this imagery that building #18 is approximately four stories high and has a conveyor shed (#18B) leading up to the top level of the building. The overhead photography of this area shows that this conveyor shed runs up from the ground where there is a very dark area, presumably a coal pile. Immediately adjacent to building #18A is a smoke stack which appears to be three to four times taller than the building. This smoke stack and a portion of building #18 can be seen in Figures 6 and 34. It is believed that the primary function of the building is that of producing heat; it could not be determined whether this facility has any capacity for producing electric power.

20. This building was first observed on [redacted] (Figure 5). Analysis of the roof configuration indicates that it has a high center bay with a lower roof sloping away on either side. The center portion measures 230 feet by 60 feet and is approximately 2 stories high. Each of the side bays of this building is 250 feet long by 30 feet wide and one story high. The use of this building is unknown.

23. Building #23 is located parallel to the main highway and the towing basin between the probable rotating-arm facility (#12) and the probable circulating water channel (#30). This building measures approximately 515 feet by 50 feet. It was first observed in [redacted] Ground photography shows this building to have three stories and the general appearance of an "office type" building. Its exact function is unknown.

24. Building #24 was first seen on [redacted] (Figure 15). Building #24 is located parallel to and connected at the center with building #23. Its approximate dimensions are 605 feet by 80 feet; it is two stories high.

28. The structure annotated as #28A and #28B forms a U-shaped wind barrier around the open maneuvering basin (#29). Figure 14 provides good ground photography of this facility. A fence surmounts the peak of this

FIGURE 19.

Building #1A Feb 64

DIA 5901002664/E-28

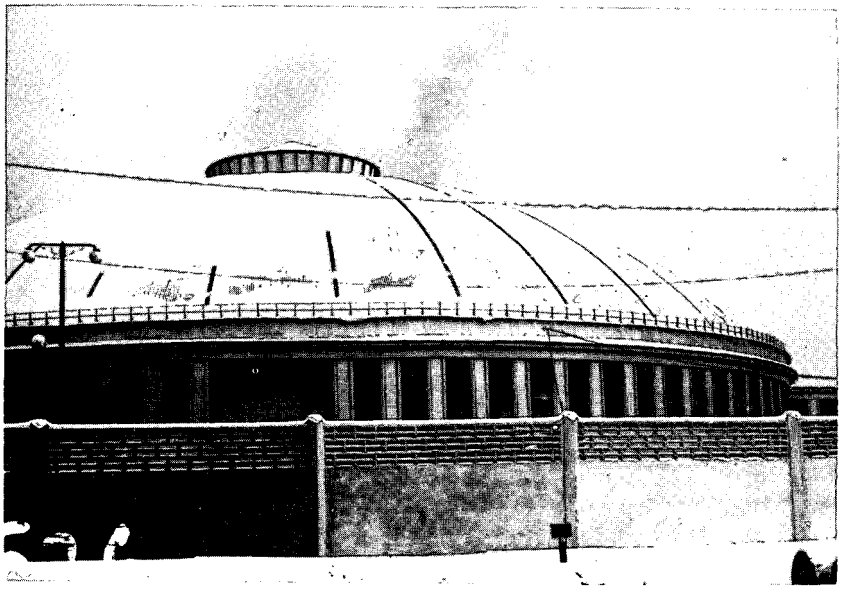


FIGURE 20.

Building #12 Feb 64

DIA 5901002664/E-26

FIGURE 21. Building #39 Feb 64. DIA 5901002664/E-18

earthwork barrier to provide additional protection. There is no indication of any underground structure beneath the barrier. This facility was first seen on [redacted] Figure 5) at which time it was still under construction. By the time of the photography of Figure 14 [redacted] the barrier was apparently complete. This barrier serves to partially shield the open maneuvering basin within it from wind effects.

29. The open maneuvering basin first appears on [redacted] (Figure 5). Construction on the facilities associated with this basin were nearly complete at this time. When filled with water this facility is used to test models of ships' hulls for seakeeping properties. Figure 14 provides an excellent ground shot of this facility. The basin measures approximately 220 feet by 570 feet (depth is undetermined). However, the overall length of the basin based on water level (from overhead photography) varied according to the depth of water within the basin. The previous measurements reflect the maximum dimension obtained. The facilities associated with the open maneuvering basin in addition to the wind break are: a control tower on the southwest side of the basin; a small windowless structure on the northwest side; and a two-story building on the northeast side (Figure 14). Also included in the facilities are what appear to be two docks built into the northwest side of the basin. As seen in Figure 14 these docks are in the open; however, in later overhead missions each of these docks is shed-covered. These docks probably are associated with the handling of the models tested in the basin. It is possible that the northwest end of the basin has a wave-maker. The segmented imagery at the far end of the basin seen in Figure 14 may equate to wave making equipment. This entire facility appears to have changed little since it was first seen in [redacted]

30. Facility #30, later identified as a probable circulating water channel, was first noted on overhead photography on [redacted] (Figure 17). This structure may have been under construction prior to this time but, the poor imagery of previous [redacted] missions precluded any determination of its status. The construction of this facility has been in evidence during all subsequent [redacted] and ground photography through [redacted] Ground photography provided the first information concerning the function of this structure. In Figure 23 (Feb 64) an unusally configured massive concrete structure was viewed in an advanced stage of construction. The uppermost section of this windowless concrete facility is rectangular when viewed in both profile and plan views (Figures 26, 33, and 40) and is suspended between two rather massive concrete supporting structures. Each of these two supporting structures angles inward

from its base and also angles inward toward its interface with the upper cross section which it supports. Adjacent to either end of the heavy concrete structure are buildings of the conventional "office type". The entire building is illustrated by a line drawing (Figure 30) which was compiled from information derived from all available photography. It can be seen from the ground that the internal concrete "channel" will eventually be obscured from view by a masonry facade. However, on the ground photography prior to the construction of this outer wall (Figure 23) it is evident that the left-hand side of the internal concrete structure begins to flare out as the "channel" decends to the ground (see Figures 23, 27, and 30). This particular flaring cannot be seen in the overhead photography and was not portrayed on Figure 30. More apparent, both in the ground photography and in the overhead photography, is the flaring and constriction of the "channel" as it connects with the center rectangular section at the top of the structure. At the northeast end of the top section the constriction occurs on all 4 sides of the "channel". The flaring out of the "channel" at the opposite (southeast or right-hand) end appears not to be as severe as the constriction at the northeast end.

All measurements pertaining to this building (except the maximum length and width) were done by the CIA/IAD project analyst. The illustration and accompaning measurements (Figure 30) were compiled from a combination of several different selected ground and overhead photographs. The overall length of the building, including the "office" buildings on either end, is approximately 545 feet. The width is approximately 175 feet with a height at the top of the center "test" section of 80 feet (*). The two wings at the rear (towards the towing basin) are much lower than the larger main structure. Adjacent to building #30, across the roadway (Figures 24 and 25) are several semicircular objects lying on the ground. These objects may possibly be impeller sections to be used to drive the water through the probable circulating water channel.

The construction of this building appears to have progressed slowly; analysis of the latest ground photography (Figure 35 - dated April 1965) reveals that construction is still far from complete on the outer wall.

31. This very large building (approximately 795 feet by 265 feet) was first identified under construction on [redacted] (Figure 32); however, it is likely that the ground scarring seen on Figure 31 [redacted] is related to this building. On Figure 32 it can be seen that the two ends of the building were constructed first, with a subsequent construction of the roof progressing from southwest to northeast. Analysis of [redacted] reveals that the internal structure supports for

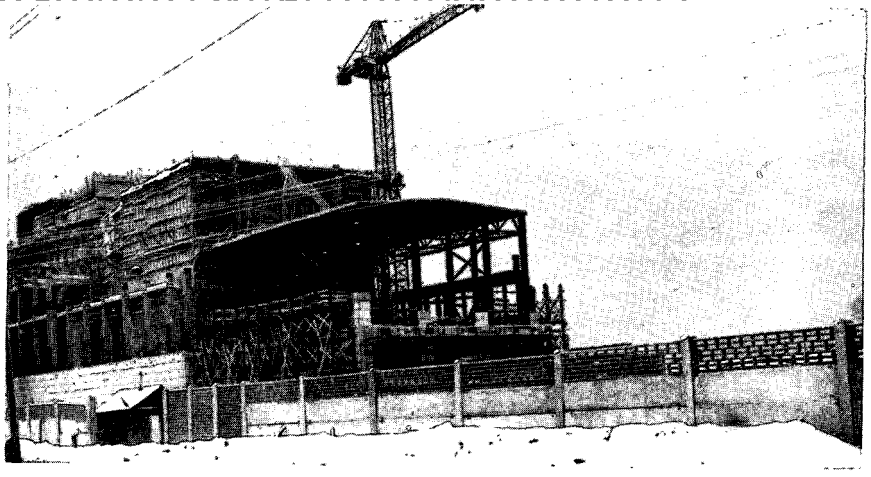


FIGURE 22.

Building #30 Feb 64

DIA 5901002664/E-19

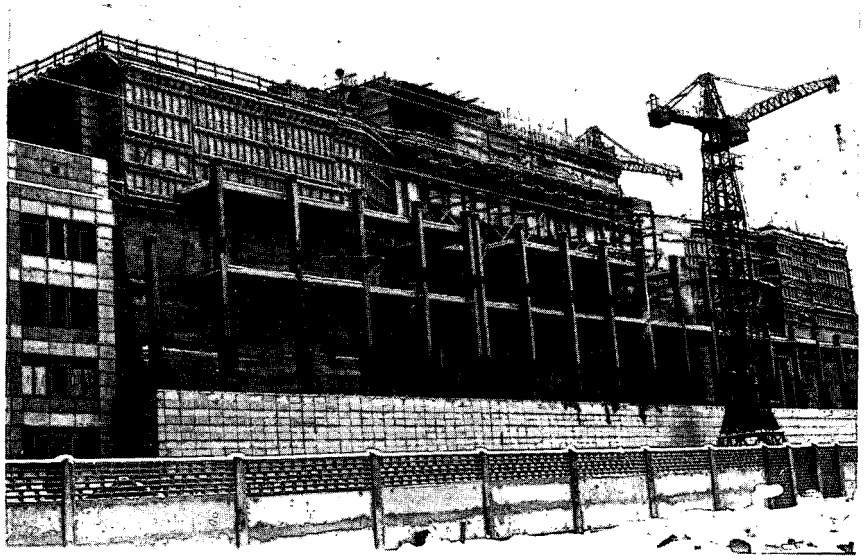


FIGURE 23.

Building #30 Feb 64

DIA 5901002664/E-24

FIGURE 24.

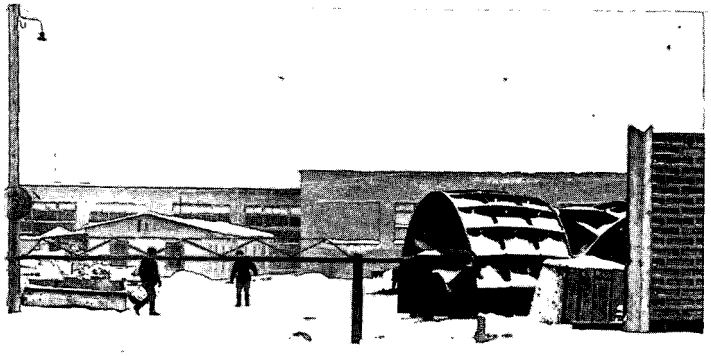


FIGURE 25.

Building #4 adjacent to building #30. Feb 64 DIA 5901002664/E-20/E-17

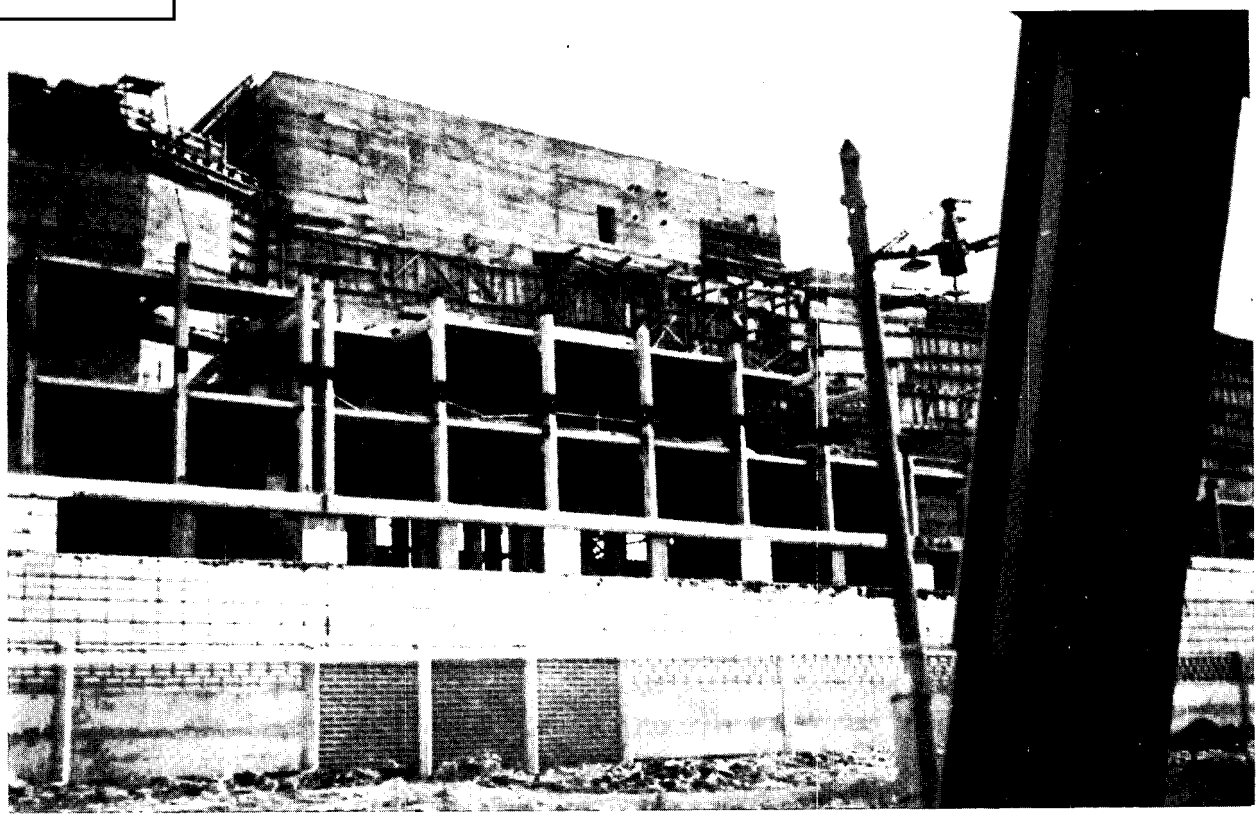


FIGURE 26. Building #30. Jul 64 DIA 5901012164/A-15

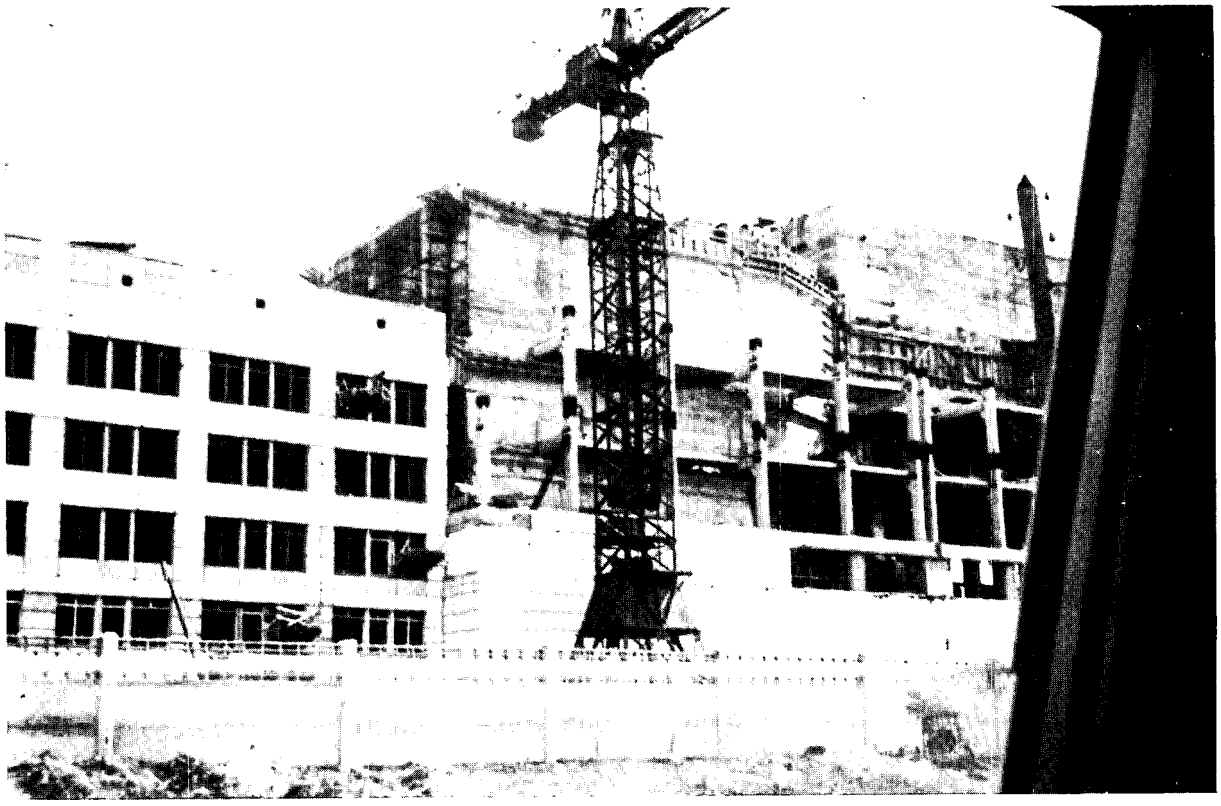


FIGURE 27. Building #30. Jul 64 DIA 5901012164/A-14

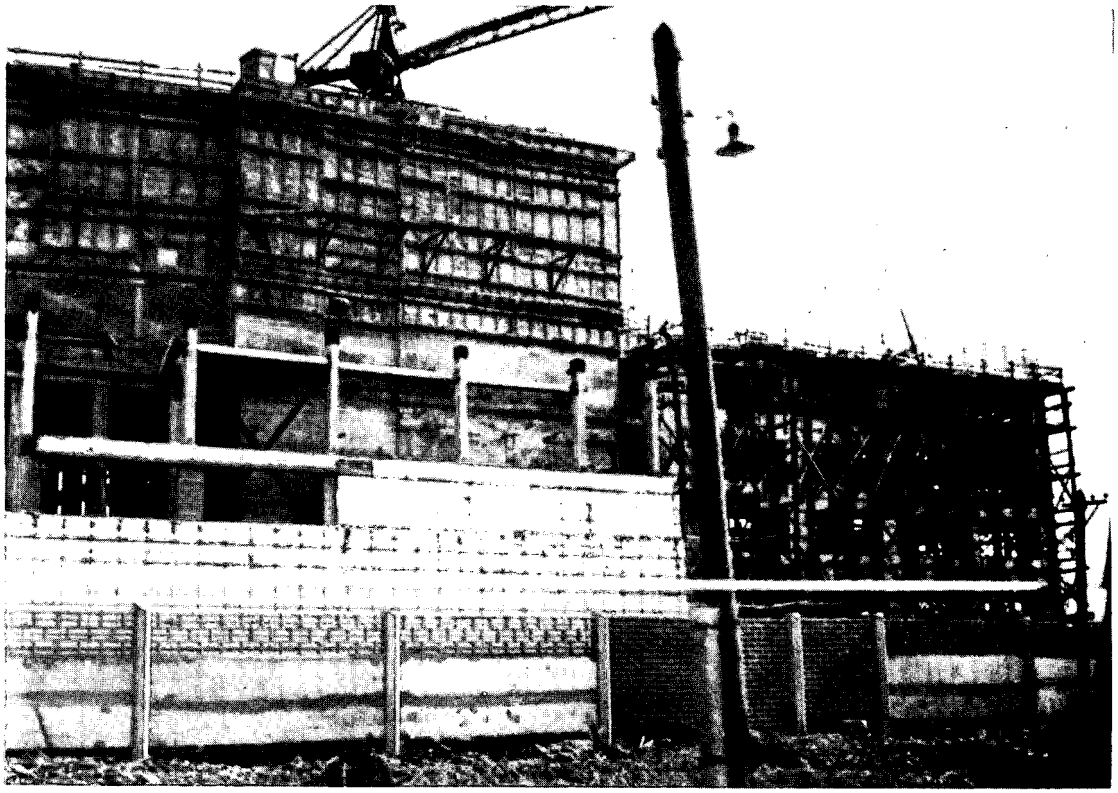


FIGURE 28. Building #30. Jul 64 DIA 5901012164/A-17

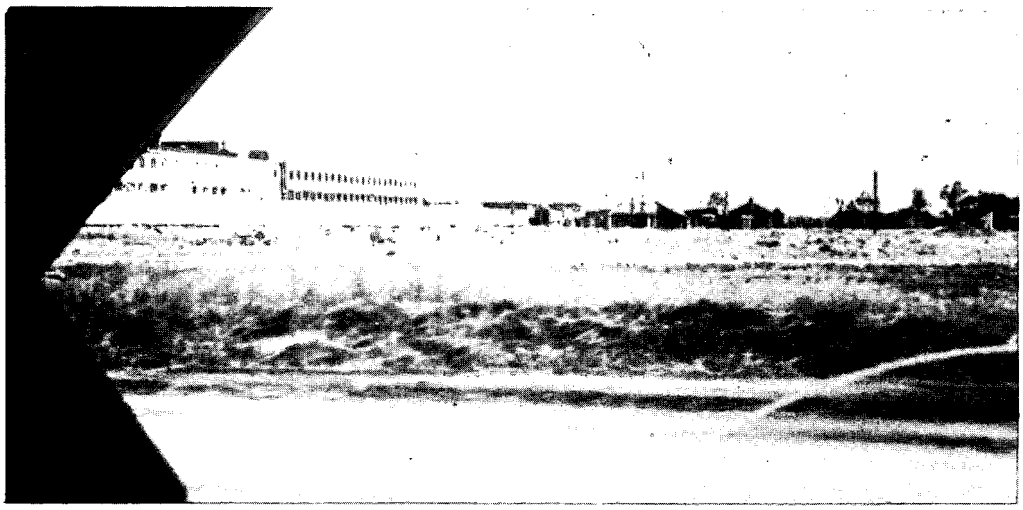
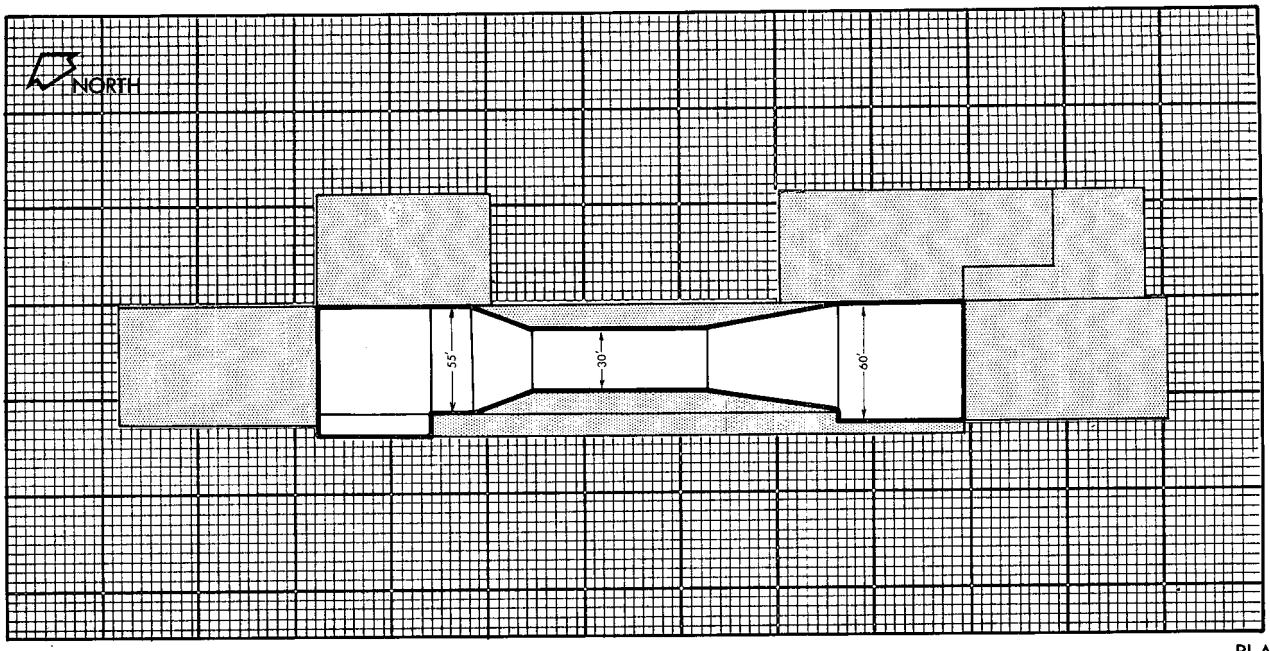


FIGURE 29. Building #39. Jul 64 DIA 5901012164/A-22

25X

SCHEMATIC DIAGRAM OF PROBABLE NEW CIRCULATING WATER FACILITY AT KRYLOV INSTITUTE SOUTH

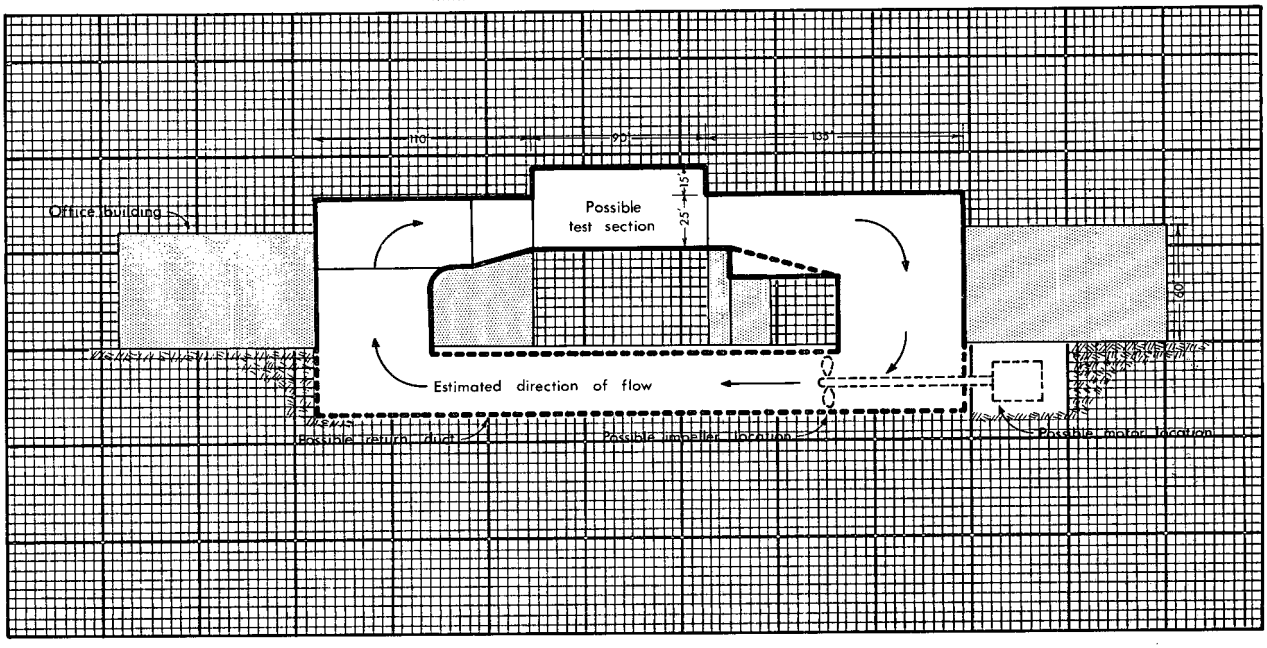


PLAN

APPROXIMATE SCALE: 1" = 100'

EXTERIOR CONCRETE STRUCTURE OF WATER CHANNEL

OTHER VISIBLE STRUCTURE (Excluding exterior wall below)



(SOUTHEAST) ELEVATION

FIGURE 30

the roof were being erected at this time. The roof of this building was still under construction as of [redacted] (Figure 39). Figures 33, 37, and 38 reveal the intermediate progress made in construction of this building. When completed, this building will have approximately 10 interior roof monitors. Shadow cast by one of these monitors while the building was midway under construction reveals that the monitor probably contains windows (see Figure 33). The function of this building is undetermined.

32 - 38. Seven unidentified relatively small buildings occupy a separately secured area within the southeast corner of the Institute. Buildings #32, #33, #35, and #36 were present on [redacted] (Figure 5). Building #33 was under construction in [redacted] (Figure 15) the remaining buildings (#34, #37, and #38) could be seen. The function of this area is unknown.

39. Possible construction activity at this site was first observed on [redacted] (Figure 15). The towing basin (#4B) was also under construction at this time. The first good imagery of this building is on [redacted] (Figure 17) at which time this building is still under construction. On [redacted] Figure 18) a portion (#39A) appears to be completed. The dimensions of this section are 565 feet in length and 140 feet wide. Analysis of ground photography dated [redacted] reveals that an addition to this structure was then under construction (#39B on Figure 40). In Figure 29 [redacted] this addition was again photographed from the ground at which time it appears to have been completed. [redacted] (Figure 31) provides the first overhead imagery of the addition.

The original building (#39A) and the addition (#39B) are each two stories high. The exact function of this building is unknown, but it is believed to directly associated with the towing basin (#4).

X1 TOP SECRET

X1

KRYLOV INSTITUTE SOUTH

FIGURE 31

25X1

25X1

TOP SECRET

FIGURE 32

KRYLOV INSTITUTE SOUTH

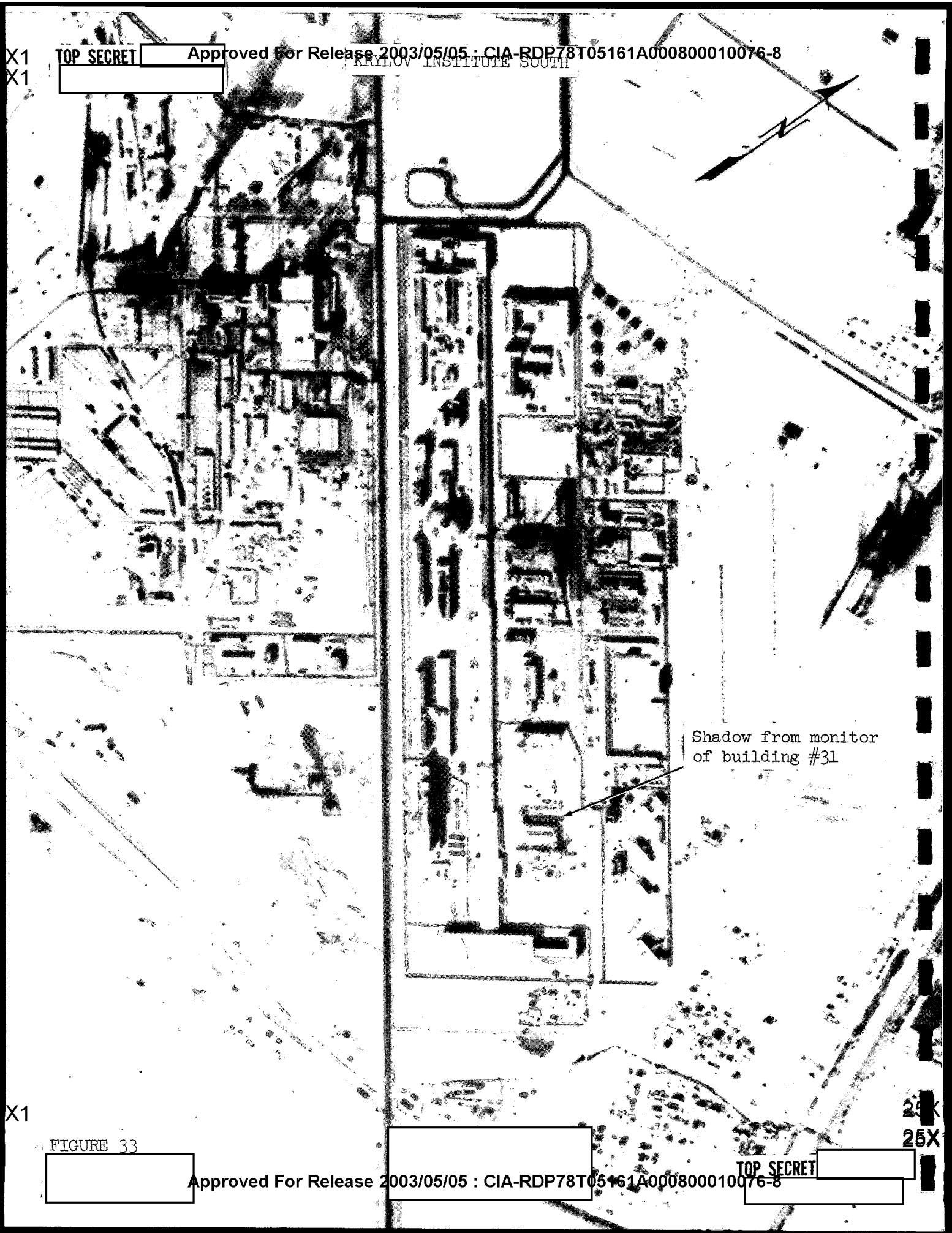


FIGURE 33

FIGURE 34.

Between area #6 and building #5 toward building #18. Apr 65

DIA 5901007265/47

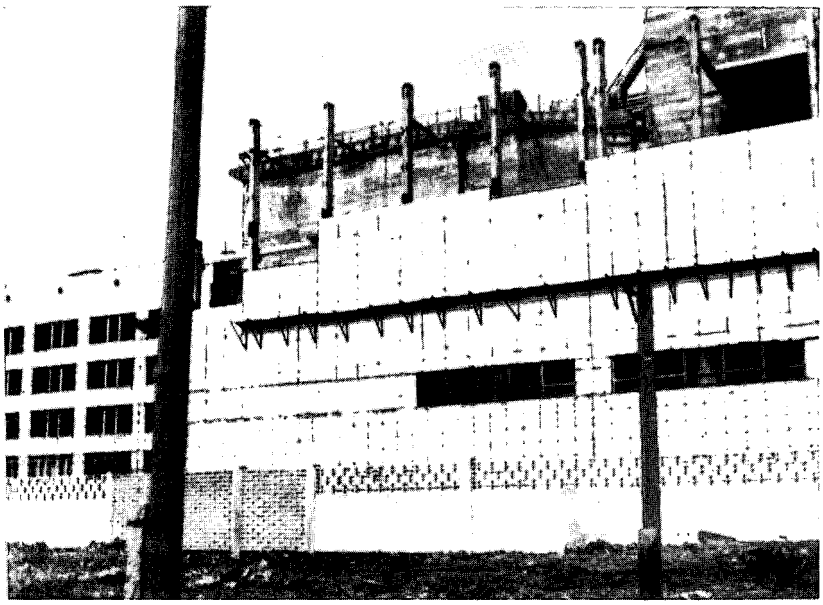


FIGURE 35.

Building #30 Apr 65

DIA 5901007265/41

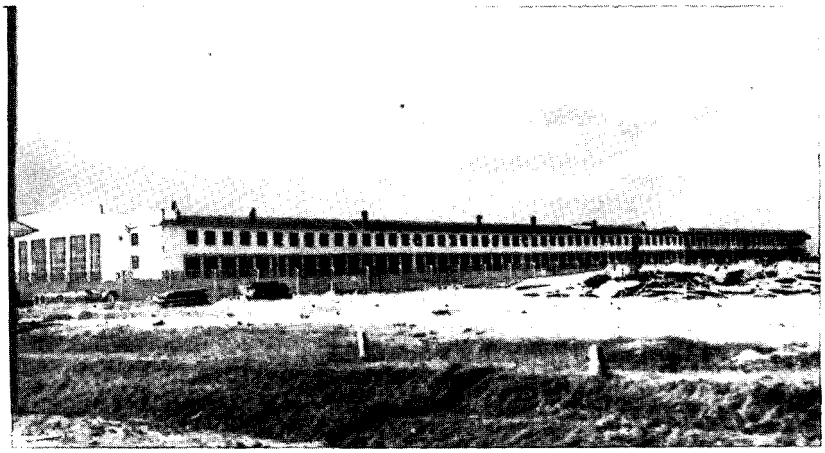


FIGURE 36.

Building #39 Apr 65

DIA 5901007265/32

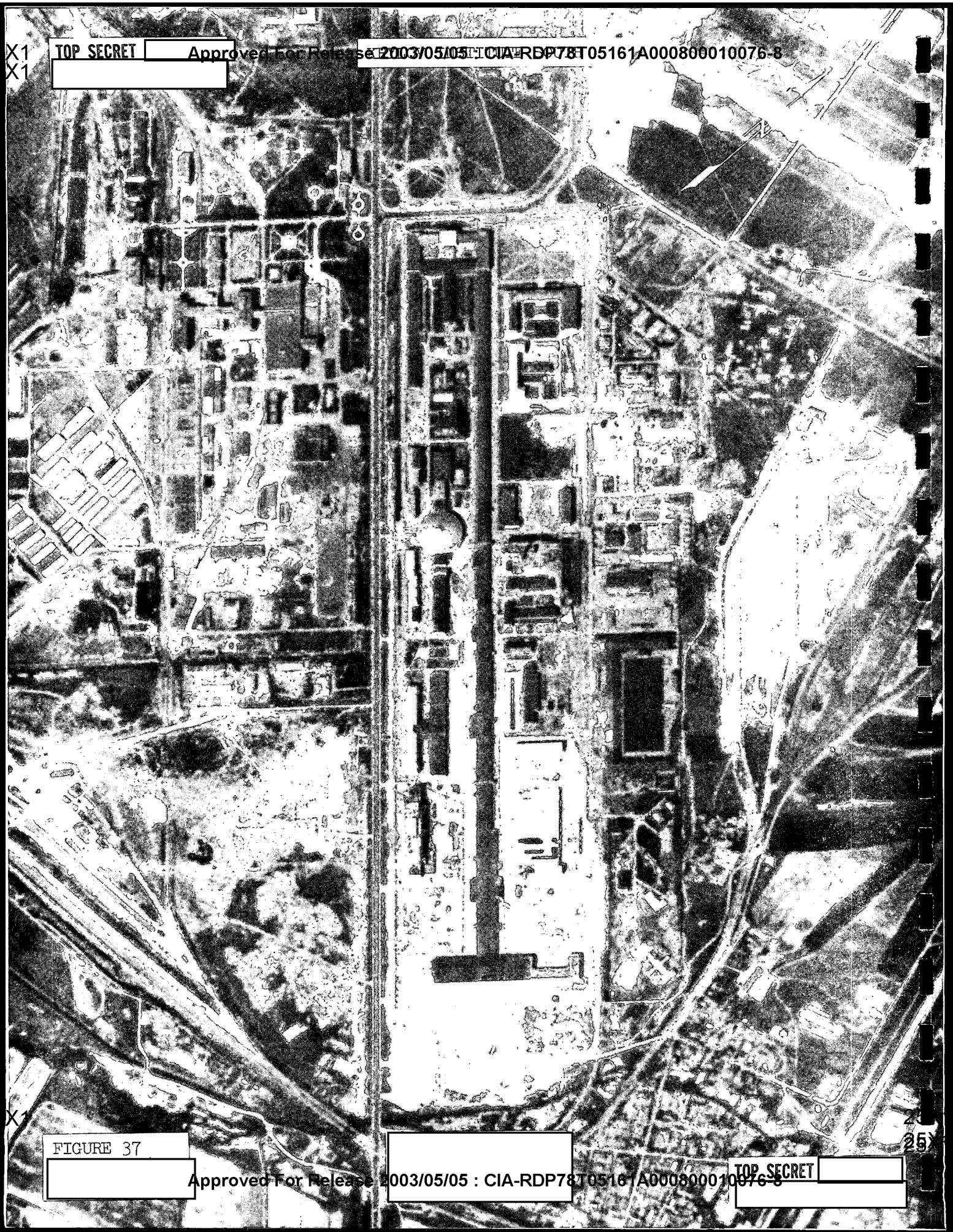


FIGURE 37

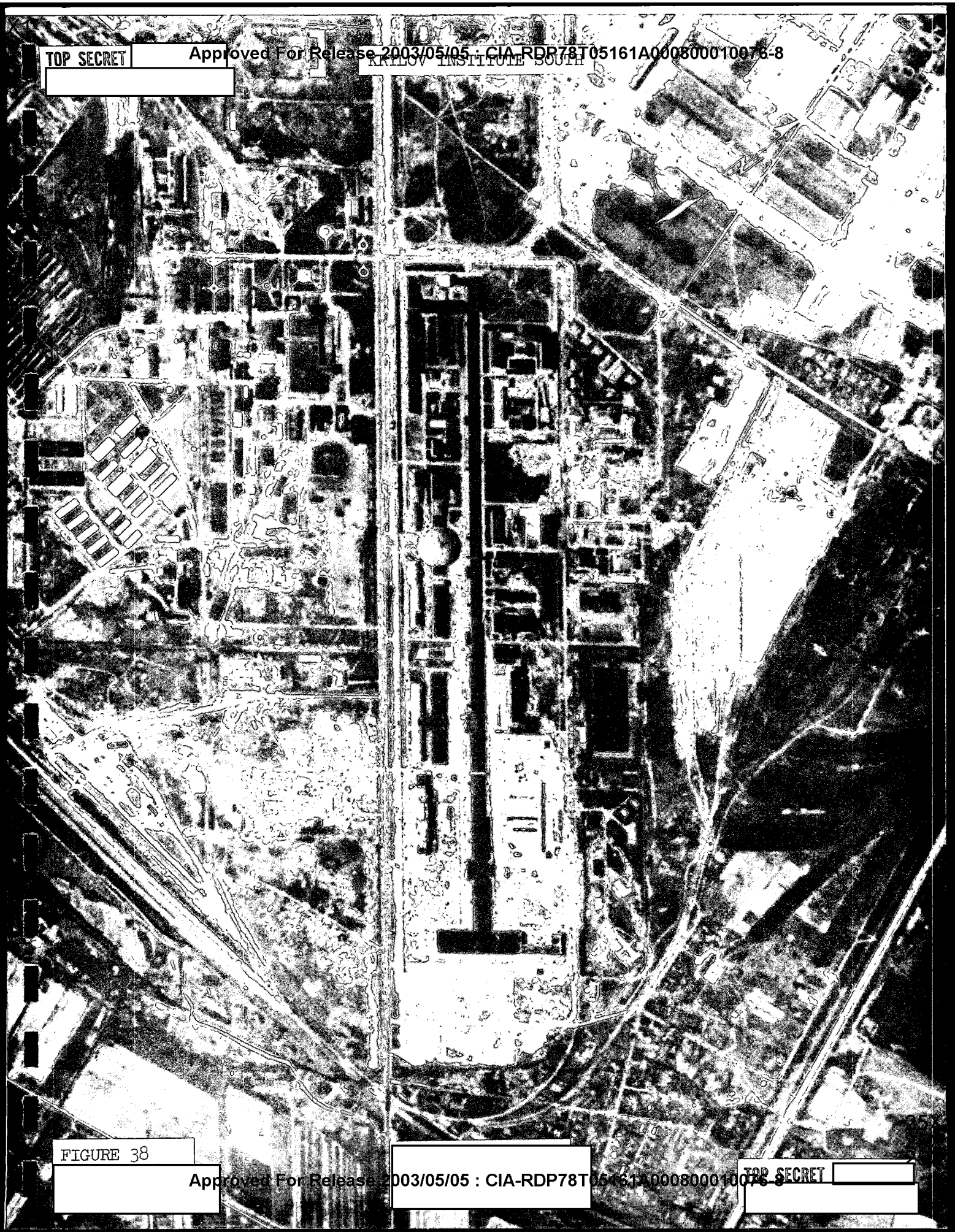
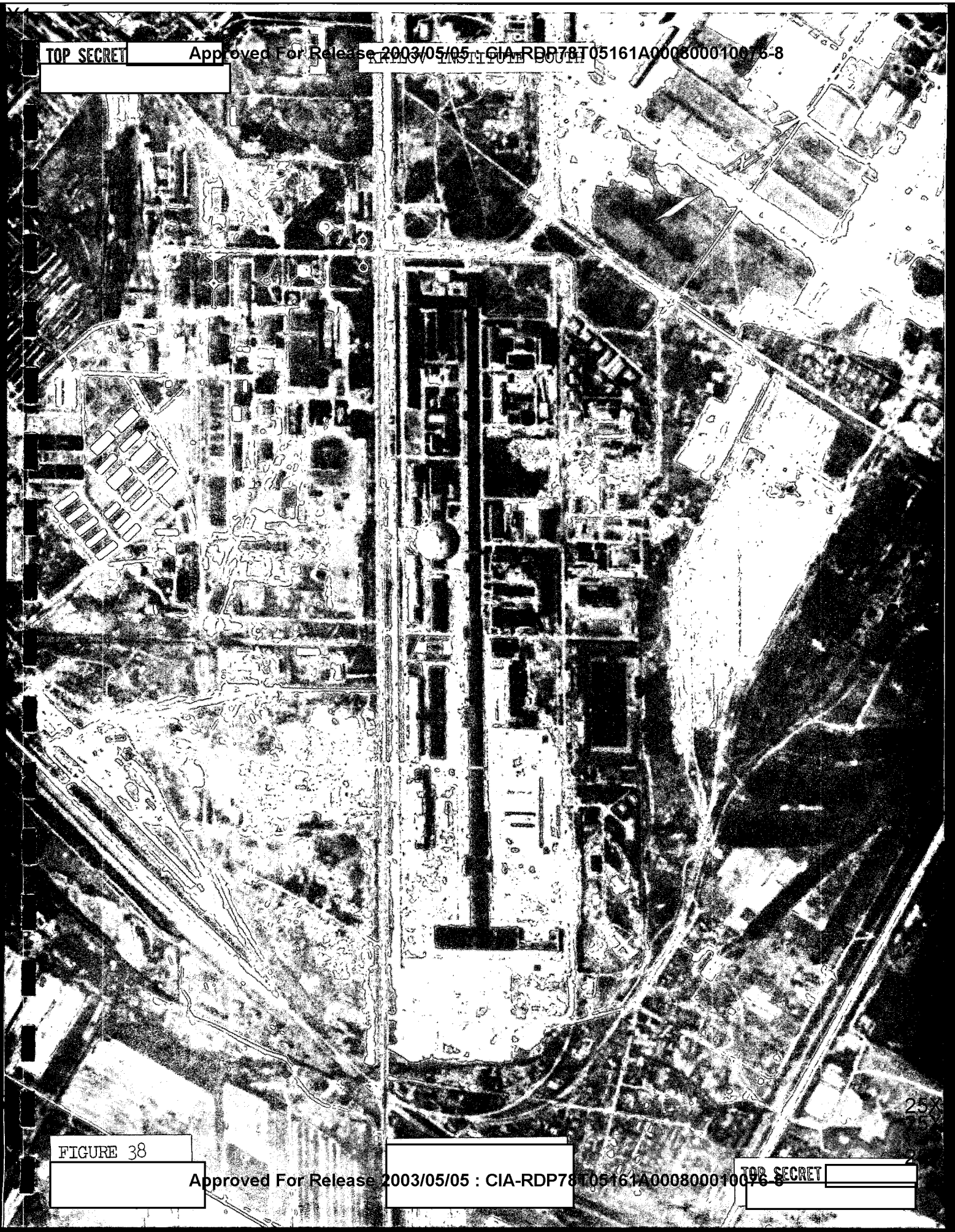


FIGURE 38



25X1

FIGURE 38

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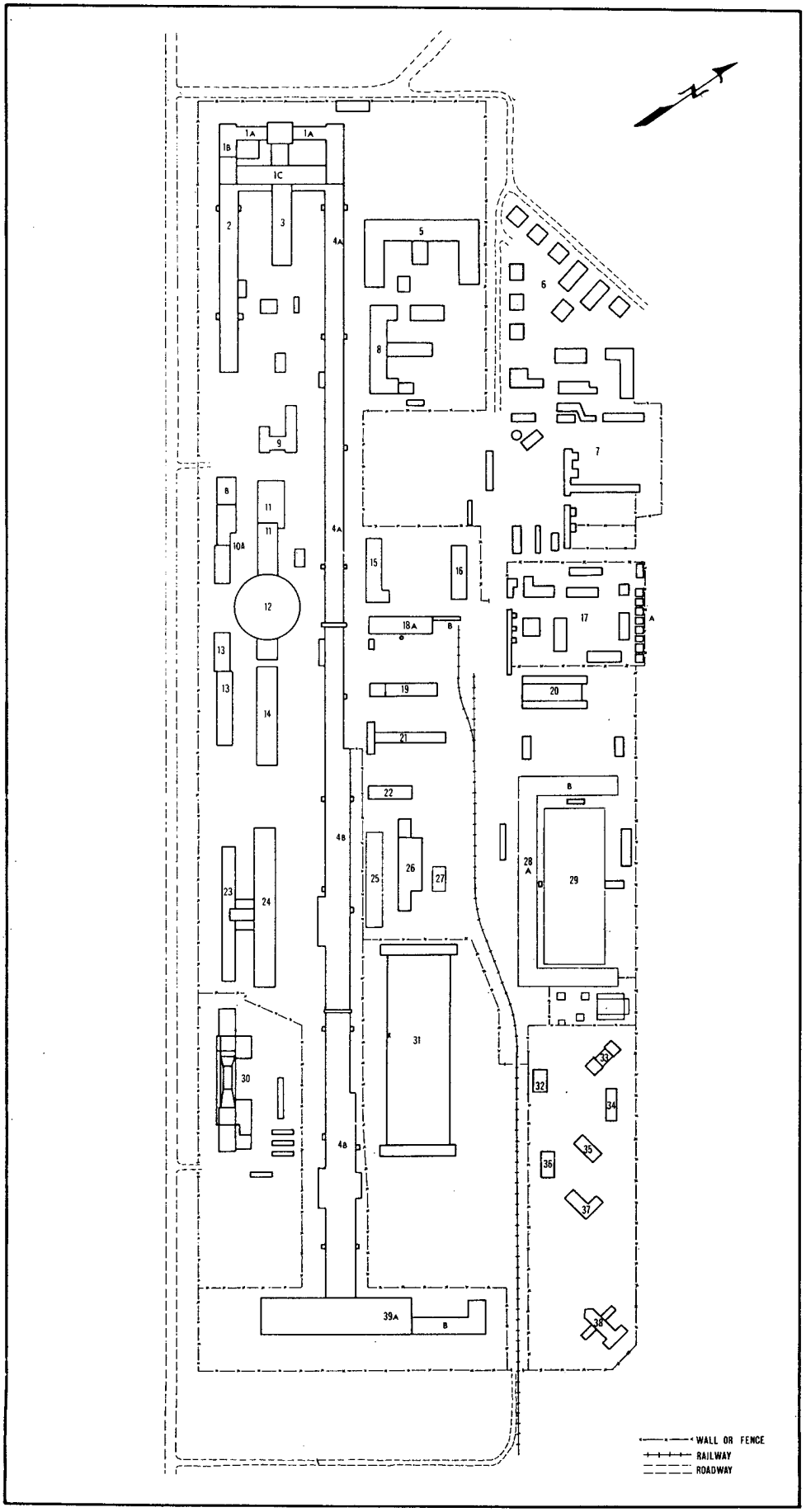


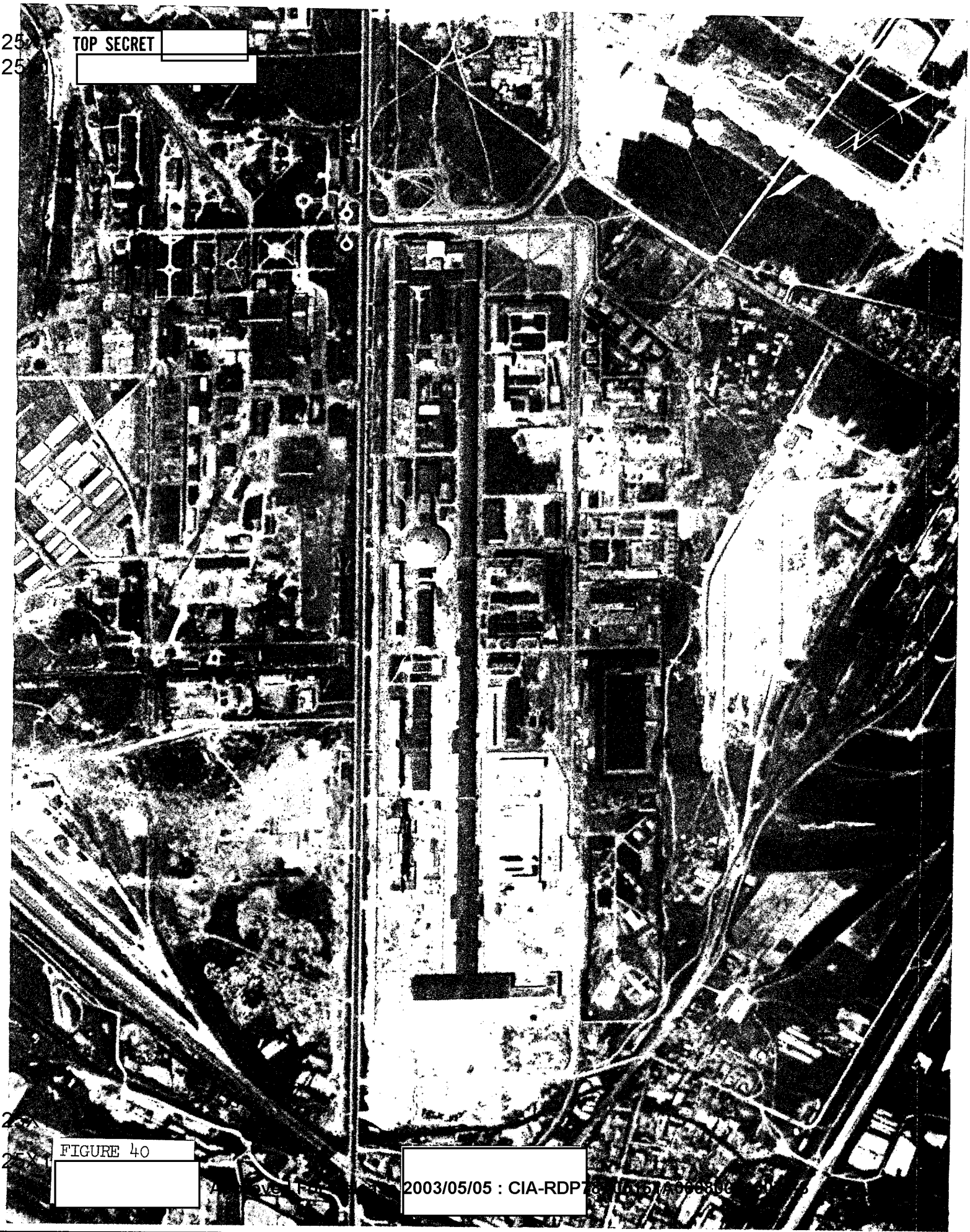
KRYLOV INSTITUTE SOUTH (1965)

Leningrad, USSR

KEY TO ANNOTATIONS

ITEM	DIMENSION	HEIGHT (stories)	FUNCTION
1A	335' x 50'	2	Probable administration
B	225' x 65'	2	End of towing basin, possible machine room for towing equipment.
C	335' x 65'	1 1/2	Probable model shop.
2	700' x 70'	1	Shallow - water towing basin.
3	290' x 70'	1	Unidentified building.
4A	1665' x 70' (minimum)	1	Deep - water towing basin.
B	2565' x 95' (minimum)	1	Deep - water towing basin.
(4A + 4B)	(4230' length overall)		
5	430' x 245' (overall)	2 1/2	Unidentified building.
6	various	2	10 buildings - probable housing.
7	various	1	Approx. 16 buildings - probable vehicle/equipment storage.
8	330' x 230' (overall)	2 - 3	Unidentified building.
9	175' x 125' (overall)	2 - 3	Unidentified building.
10	485' x 85' (overall)	2 & 3	Unidentified "office" type building.
11	360' x 100' (overall)	3 - 4	Unidentified building (adjacent to probable rotating arm facility).
12	240' diameter	2	Probable rotating arm facility
13	425' x 70' (overall)	2 1/2	Unidentified "office" type building.
14	375' x 75'	2 1/2	Unidentified "factory/warehouse" type building.
15	230' x 90' (overall)	1 1/2 - 2	Unidentified building.
16	205' x 65'	3 - 4	Unidentified "office" type building.
17	various	1 - 2	Approx. 8 unidentified buildings.
A*	30' x 35'		8 unidentified objects in a row.
18A	180' x 60'	3 - 4	Heating/power plant.
B	200' x 20'	1 - 4	Coal conveyor to heating/power plant.
19	255' x 60'	1 1/2 - 2	Unidentified building.
20A	230' x 60'	2 1/2	Unidentified building.
B	250' x 30'	1	(Part of building 20A)
21	295' x 125' (overall)	2 - 2 1/2	Unidentified building.
22	165' x 50'	1 1/2	Unidentified building.
23	515' x 50'	3 1/2	Unidentified "office" type building.
24	605 x 80'	2	Unidentified building.
25	360' x 60'		Unidentified pool.
26	350' x 90' (overall)	1 & 2	Unidentified building.
27	75' x 50'		Unidentified pool.
28A*	800' x 75'	1 1/2	Wind barrier for open manuevering basin.
B*	375' x 75'	1 1/2	Wind barrier for open manuevering basin.
29	570' x 220'		Open manuevering basin.
30*	545' x 125' (overall)	6 - 8	Probable circulating water channel.
31	795' x 265'	2 1/2 - 3	Unidentified building.
32	70' x 60'	1 1/2	Unidentified building.
33*	135' x 55'	1 1/2	Unidentified building.
34	125' x 40'	1	Unidentified building.
35*	100' x 50'	1 1/2	Unidentified building.
36	100' x 50'	2	Unidentified building.
37	115' x 85' (overall)	1 1/2	Unidentified building.
38	145' x 165' (overall)	2	Unidentified building.
39A	565' x 140'	3	Unidentified building (end of deep - water towing basin).
B	275' x 135' (overall)	3	Unidentified addition to building 39A.

Asterisk (*) indicates measurements by CIA/IAD project analyst.



25X1

FIGURE 40

25X1

B. Krylov Institute North

NIS 26, USSR 72 (October 1959), states that the Krylov Institute is located on two sites - one constructed since World War II and located approximately 12 kilometers south of Leningrad - and a second older site within the city of Leningrad. The Soviet publication SUDOSTROYENIYE (Shipbuilding) indicated in its May 1957 issue that research relating to water resistance of ships' hulls was begun in 1897 on Novaya Gollandiya Island. This small triangularly-shaped island is located in the Moika Canal just east of the Sudomekh Shipyard at 59-55-45N, 030-17-25E. Analysis of the overhead photography of this site reveals little to indicate the present function of the facilities on the island (Figure 44). Building #13 is a probable steam generating plant for heating. Item #17 is a small irregularly-shaped basin having two outlets to the canals surrounding the island. Imagery that is not unlike that of a ship model is visible along the west side of the basin in 1942 (Figure 44). Building #6 appears to have a configuration similar to that of a very small towing basin. The circular structure at the western corner of the island cannot be identified. Buildings #12, #14, #15, and #16 are multi-storied and may house offices - or possibly laboratories. No significant facility changes have been observed at this site [redacted] (see Figures 41-44).

FIGURE 41

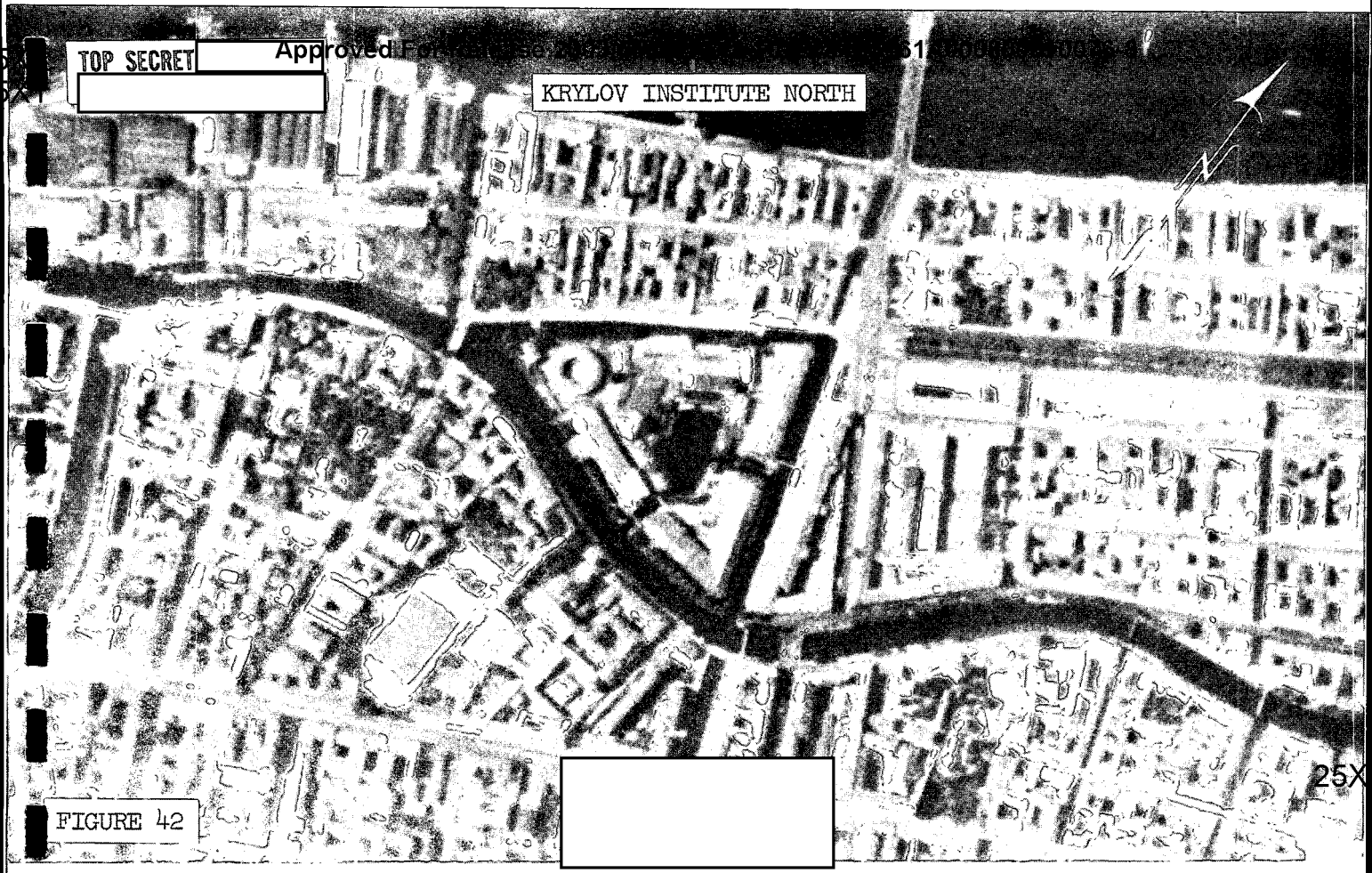


FIGURE 42

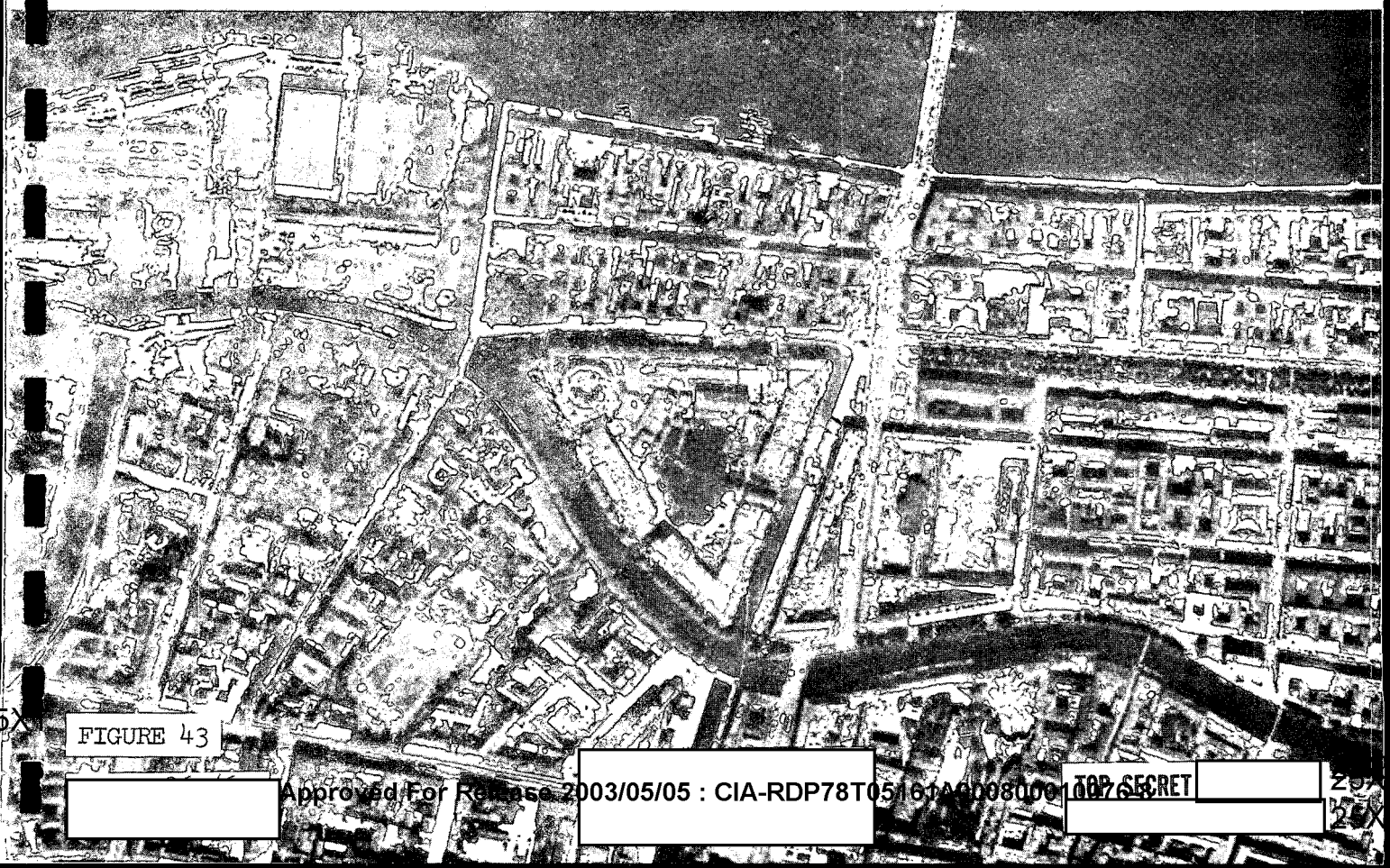
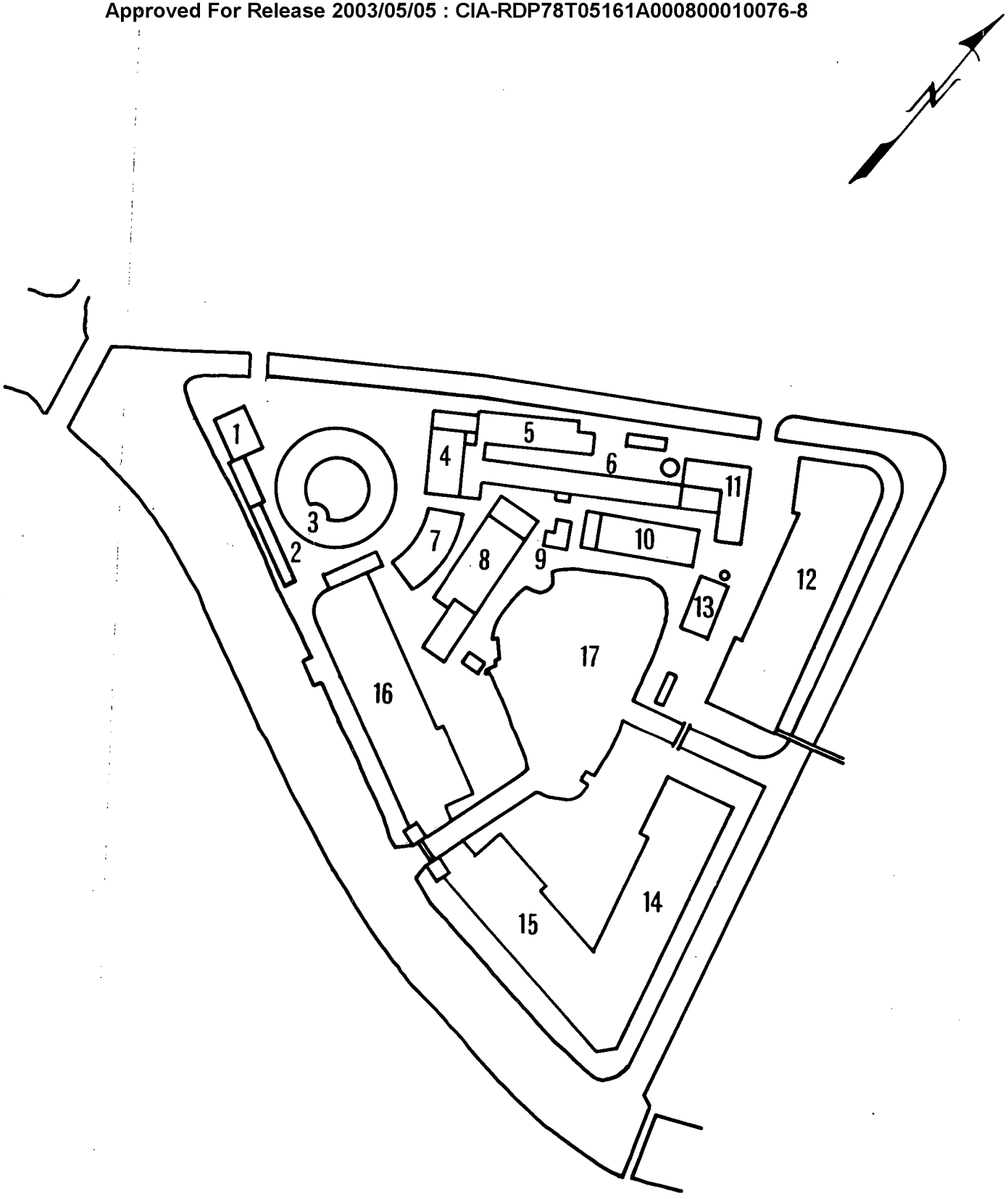


FIGURE 43



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KRYLOV INSTITUTE NORTH

Leningrad, USSR

KEY TO ANNOTATIONS

ITEM	DIMENSIONS	
1*	50' x 75'	
	25' x 80'	
2*	135' x 20'	
3	185' diameter overall (inner court diameter = 115')	
4*	185' x 50'	
5*	185' x 55'	
6*	320' x 40'	
	90' x 30'	
7*	140' x 60'	
8*	200' x 70'	
	90' x 40'	
9*	50' x 35'	
10*	170' x 60'	
11*	100' x 50'	
	120' x 50'	
12*	450' x 115'	
13*	90' x 50'	(Possible heating/power plant)
14*	450' x 100'	
15*	410' x 110'	
16*	420' x 110'	
17*	370' x 250'	(Possible manuevering pond)

Asterisk (*) indicates measurements by CIA/IAD project analyst.

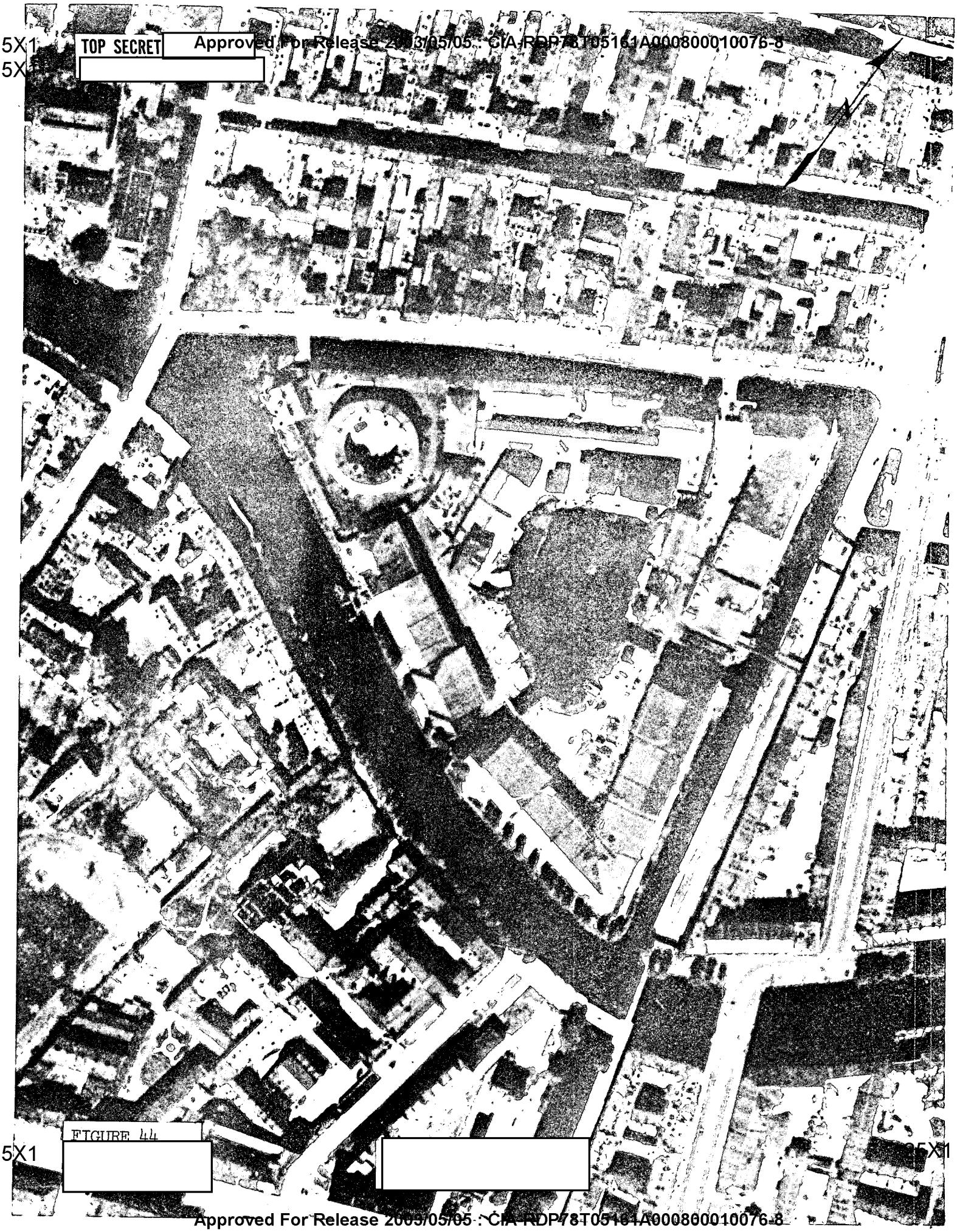

FIGURE 44

25X1 25X1

Next 6 Page(s) In Document Exempt

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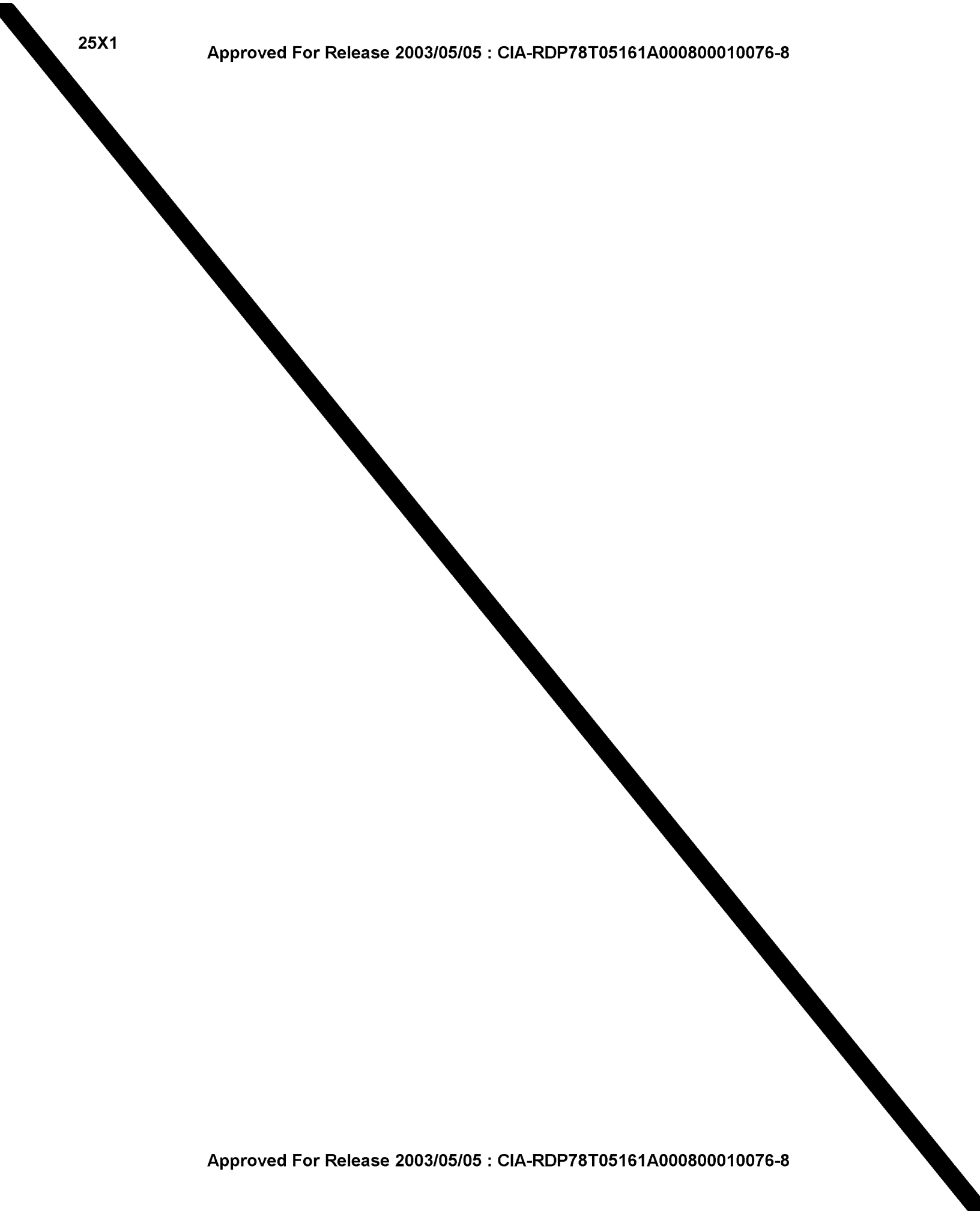
REQUIREMENT

C-S14-81,486

CIA/IAD PROJECT

30507-4



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